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GREEN SCENE

THE MAGAZINE OF THE PENNSYLVANIA HORTICULTURAL SOCIETY • SEPTEMBER/OCTOBER 1987 \$1.50



*Harvest Show
Preserved Products
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Front cover: Roni Chernin's homemade wines have put her in the winner's circle at the Harvest Show in the Preserved Products section. Here she checks for quality.

photo by Tom Gralish

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photo by John Gouker

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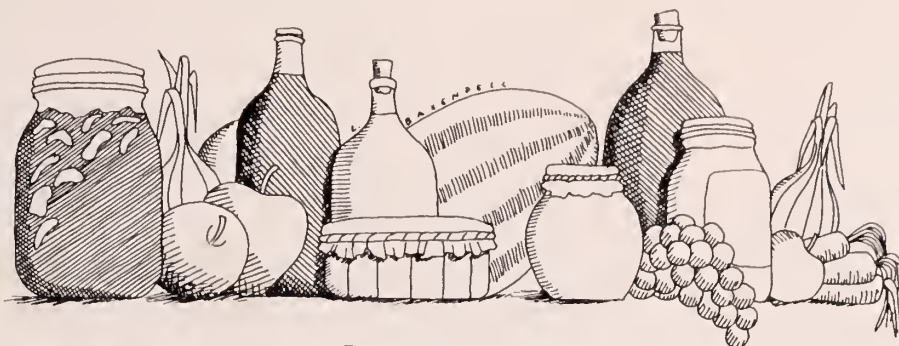
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BENDING THE RULES ON GREEN SCENE'S 15th ANNIVERSARY

Well, *Green Scene* has been decorous for 15 years. And the First Amendment's freedom of the press rights have never been in danger here. When Ernesta Ballard hired me 16 years ago she laid down only two rules about what *not* to publish: no sex and no members drinking alcohol. So, here we are bending the rules right there on the cover with Roni Chernin pouring some great homemade wine, made for last year's Harvest Show.

Roni Chernin is on the front cover because in this issue Sally McCabe tells us about some of the wonderful people who exhibit in the Preserved Products section of the Harvest Show, and Dick Bitner, a physician who has more than a passing interest in our well-being, not only chairs the Preserved Products section again this year, but writes about how to preserve foods safely.

Let's face it; this is a Harvest Show issue and I wish we could publish 100 pages more about the Harvest Show – it's such a happy, intimate, family Show for gardeners. You should be there during set-up: people getting to know their fellow exhibitors, exchanging growing tips, promising seeds or cuttings. Harvest time – a time for expansiveness of the spirit.

Bill Coppens, Évi B. Loeb, John Swan, Jane Pepper, Martha Straus and Blanche Epps also share their Harvest Show secrets in this issue, and because our presses aren't rubber and can't stretch we had to postpone a story about another of our wonderful winning exhibitors, Aldo Silvestri, until the next issue. But we saw his garden and all I can say is get busy with your weeding and fertilizers if you want to beat Aldo, that canny city gardener. We hope these exhibitors will inspire you to enter the Show. Check your Harvest Show Schedule again and to save time call us for your entry tags before the Show (215-625-8250). See you at the Horticulture Center and don't forget the Member's Preview on Friday afternoon, September 25; the Show opens to the public on Saturday and Sunday, September 26-27.

We hope you noticed our spiffy new cover logo, designed by Julie Baxendell. We decided, too, with this issue to drop our old subtitle "Horticulture in the Delaware Valley," since for years we've featured stories from as far south as Maryland and Washington and as far north as New York State and Rhode Island. We want to continue to hear from writers and readers in those areas, as well as Western Pennsylvania. Let us know how it's going in your green world.

Jean Byrne, *Editor*



More than Jamming at the

 by Sally McCabe

The first time I went to the Harvest Show 10 years ago I won two blue ribbons. One was for peach wine, the first batch I'd ever made; the other was for a pickle collection. I think those ribbons did more for my ego than anything else I did that entire year. The ribbons still hang on my refrigerator door, a little faded now, but strong evidence that I am hooked along with several hundred other exhibitors of preserved goods at the Pennsylvania Horticultural Society's annual Harvest Show.

Visitors to the Preserved Products section of the Show quickly realize that there's more here than just a lot of canned food. Putting up jams and jellies and pickles and sauces is a true art form. And to do it well enough to win the approval of a judging panel is nothing short of creating a masterpiece. Fruits and vegetables must be picked at the height of perfection, the colors exquisite, the jars sparkling. Don't be sur-

prised to find jars of perfectly straight string beans of uniform length that must have been marched into their containers, carrot bits you'd swear were manufactured on an assembly line, they're so similar. And don't forget the labels – some exhibitors must spend long hours (weeks!) getting just the right shade of ink to contrast properly with the contents of the jars.

One of the aspects of the Harvest Show that appeals most to me is that probably half of the entries are made from produce grown in the city, often under difficult conditions, and still they're as beautiful as the fruits and vegetables grown and exhibited at any country fair. Many of the recipes have been brought here from those same country fairs, and adapted for use in the city. Others are variations on old standards that have stood the test of time from generation to generation. And still others are so universal and basic that everybody in

the world has access to them.

One of those in the universal and basic category was contributed by Richard Bitner, who is chair of the Preserved Products section of the Show. It's a guaranteed winner every year, and comes from, of all places, the Sure-Jell fruit pectin direction sheet.

Dick's Sure-Jell Crab Apple Jelly
5 lbs crab apples (7 cups juice)
9 cups (4 lbs) sugar
1 box Sure-Jell fruit pectin

Boil fruit in 5 cups water, then simmer 10 minutes. Crush, then simmer 5 more minutes. Put pulp in jelly bag and allow to drip. According to Dick, the secret here is never to squeeze the bag – just allow it to drip or the jelly will be cloudy. That may take more fruit, but then, when was there ever a shortage of crab apples? Follow directions on pectin label. Seal in jars with lids



◀ The Harvest Show's Preserved Products section is a tasty favorite with the judges. This year 77 classes feature entries under Canned Foods, Pickles, Relishes, Sauces, Jellies, Jams, Preserves, Spirits, Juices and a hot category called Miscellaneous, featuring vinegars, potpourris, seasonings, honey, etc.

Table put together by the Queen Village Garden, so don't miss a chance to see them.

Certain bottles are better than others for storing vinegars. Although flasks are very pretty for show, the acid will usually eat through the rubber within a year. But by then you already have your ribbons, and have probably given the jars of vinegar away as housewarming or Christmas gifts. Frank Kieser, who also gardens on Sansom Street, uses Dewar's White Label Scotch bottles (no rubber rim – he uses corks), and has an arrangement with the bar around the corner to save them for him. Ruth suggests that the bottles carry a lot of weight in judging, since not only

Dick says the trick for catching the judges' attention is to put a rose geranium leaf on top of the jelly before sealing with the paraffin. The smell of roses when they remove the paraffin gets them every time.

do things have to taste great, they also have to look great. Frank, Ruth's cohort in compulsive Harvest Show behavior, spends days before the Show polishing his jars with vinegar water and a soft cloth.

Of course not every ribbon is the result of such compulsive tendencies – witness the growing number of entries in the sauces categories. Many of the winners, if plied with homemade wine, will confess that their sauce is really the result of a jelly that never thickened – but the taste was good enough to please the judges. And what about the category that's since been retired – the real honest-to-goodness homemade vinegars, not the herbed or flavored kind? It broke my heart when they retired the class, since I always had a wine or two that turned into an "unintentional vinegar," that managed to get a ribbon every year.

Speaking of wines, Roni Chernin, a relative newcomer (1986 was her second show) swept away almost all the available ribbons in the wine classes last year. Although some jokers said she won by virtue of her labels alone, the judges tasted each and every one of her bottles before awarding the prizes. Roni uses *Winemaking as a Hobby* (Penn State Correspondence Course, 128 Mitchell Bldg., University Park, PA 16802. Phone 814-865-7371. \$4.75) and gathers most of her ingredients at her home-away-from-home in West Virginia.

continued

Harvest Show

or paraffin. Dick says the trick for catching the judges' attention is to put a rose geranium leaf on top of the jelly before sealing with the paraffin. The smell of roses when they remove the paraffin gets them every time.

vinegars

Another blue ribbon canner is Ruth Flounders, who gardens near 43rd and Sansom in West Philadelphia. Ruth so far has several bronze ribbons (for horticultural excellence) hanging on her fridge, and here offers some of the secrets for her blue ribbon herb vinegars.

Although most recipes call for a lot of bother – heating the vinegar first, or simmering with the herbs, or setting out in the sun for a few days – Ruth tries not to do anything too fancy. She just pours the vinegar (she suggests white rice wine vinegar) into jars, arranges the fresh herbs in

the vinegar, and lets it all sit somewhere in the dark for two months. To pretty things up for exhibition, the herb arrangement in the vinegar starts with a pile of thyme in the bottom, to anchor whatever other herbs she chooses to weave in. Of course her "nothing too fancy" has been known to include spending 40 minutes with chopsticks the day of the Show arranging a nasturtium flower in each of three identical flasks.

Different ingredients (herbs, fruits, flowers) can change the color of the vinegar, which adds another interesting dimension. Libby Goldstein won a bronze several years ago when she entered a collection of 12 different flavored vinegars, each a slightly different shade ranging from almost totally clear through pinks, red, and purples, to an almost black (but still transparent) burgundy. Pieces of the collection still find their way each year to the Harvest

Harvest Show

A diehard Show exhibitor, Blanche Epps, gardens in and coordinates a huge community garden at Pearl and Conestoga (near 55th & Vine) in West Philadelphia. Her offering here is part of a collection of relishes that won a blue two years ago. It's called "Cabbage Chowder" and is used over or mixed with a pot of greens, since it's so hot by itself that it will curl your toenails. Blanche claims that it smells up the kitchen good enough till you want "to slap somebody for bothering you."

Cabbage Chowder (Chow Chow)

- 6-7 medium sized hard green tomatoes, sliced
 - 1 green, 1 red, 1 yellow sweet pepper, chopped coarsely
- 5 cayenne, 5 jalapeno, 5 cherry peppers, chopped coarsely
- 5 miniature hot pepper, whatever is available (like Thai Hot) whole
- 2 medium white onions, chopped coarsely
- 2 medium heads cabbage, grated like cole slaw
- 1 spice bag (basil, thyme, rosemary, allspice, & 1 garlic clove, crushed)
- 4 cups vinegar
- 1 cup water (if cabbage needs more juice as it simmers)
- 2 tbsp. sugar

Bring vinegar and spices to a rolling boil. Pour over pepper/cabbage mixture in an enamel pot or kettle. Simmer slowly to bring juices out of cabbage. Simmer till well wilted (20-25 minutes). Pack in pint jars and waterbath 10 minutes.

Blanche's mother used to make a variation on this chow chow, using fruit instead of cabbage. The other ingredients and the process were the same, except she added red tomatoes, pears, peaches, plums, and whatever else was around at the time. This fruit relish would then be served on meats, especially pork. (For more about Blanche Epps' skills, see page 12.)

beginners as winners

Not all of the competitors have been canning forever. Maya Clements, who pulled off a bronze medal for a preserve collection last year, only started to preserve foods a few years ago. She decided to learn because her husband Bob is such an avid

gardener, and Maya doesn't like to throw anything away.

The major part of her education came from the library, where she checked out a few publications and went to town. She starts the kettles boiling in February, since there's not much to do then in the garden, and she uses frozen or tropical fruits (oranges, pineapples) until the garden starts to produce. Her first year, also the first year she competed, she won a few ribbons. The second year, a few more. Then the third year, a bronze for her collection of preserves — canteloupe, winter squash, raspberry and pineapple, and

pumpkin. The judges' reaction: "excellent flavor and texture, attractive."

Maya likes to hang onto her recipes (she's considering writing a cookbook), so I didn't press for details. But I was so intrigued by the idea of pumpkin preserves that I went hunting. Here's one that will have to do until Maya publishes her cookbook:

Pumpkin Marmalade

- 1 small pumpkin (a 5-pounder cleaned gives about 4 lbs)
- 4 lbs sugar
- 3 lemons
- 1 orange

photos by John Gouker





Peel pumpkin and cube meat. Add sugar and let stand overnight. Put lemons and orange through a blender, discarding seeds. Add to pumpkin. Stir over low heat till boiling, then simmer till clear (2-3 hrs), stirring frequently to prevent scorching. Pack in hot bottles and waterbath 15 minutes for pints. For variety, add chunks of peaches, plums, or apricots before cooking, but after the pumpkins' overnight vigil.

other treats

Of course I have to blow my own horn a little, so I decided to include Sally's watermelon pickles, part of the collection that

won me my first blue 10 years ago. I shared this recipe with a neighbor who remembers them from when she grew up in North Carolina, and who still insists on putting them up in coffee jars. She admits that they do get a little soft or furry on top but still taste fine underneath. I prefer the furless variety, so I do mine with regulation jars and two-piece lids and a waterbath.

Watermelon Pickles

- 1 large watermelon, minus pink fruit (about 6 lbs after cleaning)
- $\frac{1}{3}$ c. salt
- 2 trays ice cubes

- 3 c. white vinegar
- 3 c. sugar
- 2 tbsps sweet pickling spice
- 1 tbsp cloves
- 2 sticks cinnamon

Peel rind and clean off any pink (although it looks pretty, the pickles will get soggy); discard rind, eat the pink fruit, and cube the white part. Combine with salt in large bowl and cover with ice; let stand three hours. This removes water from the watermelon and so makes a firmer pickle. Drain the liquid. Combine sugar, spices and vinegar and heat to a boil. Add the watermelon and simmer together 10 minutes. Pack loosely in clean hot jars leaving $\frac{1}{2}$ inch of headroom; remove any air bubbles with a chopstick. Pack a small piece of cinnamon stick and a few cloves into each jar. Process in waterbath 10 minutes.

Sue Leary is a Collingswood, NJ entrant who says she's been canning and pickling almost since she was old enough to hold a knife. Sue is co-chair of the Food Classes at the Harvest Show this year, so evidently she knows her cucumbers.

Sue Leary's Favorite Dill Pickles

- about 7 lbs medium cucumbers
- fresh dill
- garlic cloves
- 4 cups cider vinegar
- 3 quarts water
- 2 tbsp. sugar
- scant $\frac{3}{4}$ cup salt

Place small dill head in bottom of quart jar. Split garlic clove, place half in bottom of jar. Pack cukes in jar. Place a large sprig of dill and garlic clove on top. Combine vinegar, water, sugar and salt and boil with two dill heads for two minutes. Pour syrup over pickles in jars. Seal jars and boil in canner for 10 minutes.

Sue probably wins more ribbons for her pickles each year than almost anybody in recent memory. And competitors have very sharp memories.

Sally McCabe is Citywide Greening Administrator for Philadelphia Green and has gardened in the city for the last 10 years. In her spare time she coordinates a community garden in the Northern Liberties, edits the American Community Gardening Association's *Journal of Community Gardening*, and makes wine. She also grows killer pumpkins, which she keeps as pets.

SAFE CANNING: ONE OF AMERICA'S GREATEST INVENTIONS



by Richard Bitner



Courtesy of Ball Corporation, Muncie, Indiana

Today's gardeners, accustomed to enjoying fresh tasting fruits and vegetables all year long that have been preserved by canning or freezing, can hardly imagine the change in the winter eating habits brought about by the development of safe home preservation methods.

Until the introduction of the threaded-top glass container, foodstuffs could be preserved in the home only by dehydration processes. Fruits and vegetables were dried, meats and fish were dried, smoked or salted and fruits were preserved in sugar. Obviously, both taste and texture were lost trying to prevent spoilage.

Two French brothers, François and Nicholas Appert are recognized as the first to introduce methods of storing foods for up to a year in glass containers. Beginning in 1806 they heated foods in corked bottles and sealed them with wire and wax. They established a factory for their canning work near Paris and in 1810 received a grant

from Napoleon Bonaparte to devise production canning methods for the French military. In 1814 they published a treatise on *The Art of Preserving*.

Canning in the home, however, did not become practical until November 30, 1858, when an American tinsmith, John Mason, was awarded a patent for a glass jar with a screw lid that could be hermetically sealed. Until then containers had been costly, sealing was unpredictable and there was a high incidence of spoilage — generally related to the closure. The glass or clay containers were sealed with a wooden or cork plug held on with string and coated with wax or pitch. Mason's jar was closed with a glass lined screw top metal lid that closed against an India rubber sealing gasket. This must be considered one of America's most important inventions. It not only changed the dietary habits of a nation but established one of the country's great industries. There has been little change in

continued



Author Richard Bitner will be demonstrating tips for home preserving in the Classroom at the Harvest Show on Sunday (Sept. 27) at 1pm. (Check your floorplan.)

Harvest Show

photo by Richard Bitner



In the author's kitchen, ingredients for safe home canning: a clean counter, a reliable recipe and a superior product—gherkins picked at exactly the right time, vinegar, black peppercorns and half-pint canning jars.

Mason's jar concept to the present day although much has been learned about preserving.

some things about canning your grandmother never told you

Airborne molds, yeasts and bacteria—microorganisms, and enzymes that occur in the tissues of all fruits and vegetables, cause food to spoil. To be safe, follow scrupulously the instructions from up-to-date cookbooks for preparing and sterilizing food; never use decades-old clippings or poorly edited cookbooks.

how does canning work?

The extreme heat applied in canning in a hot waterbath or a pressure canner completely halts the activities of the enzymes and microorganisms. The heat not only sterilizes the food but also seals its container protecting the food from airborne contaminants. Air in the canning jars expands during the heating, and some of it is forced out of the jars. When the jars cool, the remaining air contracts to create a partial vacuum that pulls the lids tight and holds them.

how much heat is necessary to preserve food?

That depends on the food. Products high in acids can be preserved in a boiling waterbath. These include all those things your grandmother made: jams, jellies, marmalades, conserves, butters, vinegar pickles, relishes and chutneys. Products low in acid — meats and vegetables (except tomatoes) preserved without sugar, vinegar or alcohol — should be processed in a pressure canner.

Mason's jar was closed with a glass lined screw top metal lid that closed against an India rubber sealing gasket. This must be considered one of America's most important inventions.

what about other preserving methods?

Long before freezing and canning methods were available, foods were preserved by salting, drying, smoking and sealing in fat. All of these techniques deprive microorganisms of the moisture

they need to grow.

is timing important?

Absolutely. The length of time food must spend either in a boiling waterbath or a pressure canner depends on its density, its temperature when processing begins, and the size of jar into which it is packed. Food canned in large pieces requires longer processing to heat it through than food that is cut small. Food packed raw and cool in jars takes longer to reach the necessary temperature than food cooked and packed hot. Food packed in large jars needs longer processing than food packed in small jars. It is important to follow exactly recipes from modern cookbooks or booklets issued by jar manufacturers or your County Extension Office. Never improvise when canning.

but must I follow recipes exactly?

Yes! For example, when making tomato juice, arbitrarily including too great a quantity of other vegetables can lower the tomatoes' acidity to the point at which processing the juice in boiling water will not preserve it safely. Reducing the sugar in a



Photo by Richard Bitner

This year the jelly entries at the Show will include crabapple, elderberry, grape, raspberry, pepper, herbal and others. Also check out the jams and preserves at the Show.

jam recipe will affect its keeping qualities.

how does pickling work?

Vinegar and alcohol both prevent spoilage by penetrating food and by supplanting its natural liquid, acting against microorganisms in the process: alcohol kills the organisms, vinegar prevents their growth.

- The amount of vinegar or spirit needed will vary according to the nature of the food. For safety's sake, never reduce the amount specified in a recipe.

- Always use commercial vinegar that contains at least 5% acetic acid

- Always use whole spices. Ground spices or the crumbled mixture in commercial "pickling spices" cloud the brine.

- Cucumbers that you buy in the supermarket are not suitable for canning; they are waxed and are often not fresh. It's best to pick from your own garden or buy at a farmer's market.

- Use coarse pickling or kosher salt. Never use iodized or table salt.

my grandmother always used alum in pickling

The USDA no longer considers alum

safe for use in pickling.

also, she always saved the mayonnaise jars

Not a good idea. The tops are not always uniform and do not provide a reliable seal. The glass is thinner than canning jars and the jars can easily break while removing them from a boiling waterbath to a cooler counter. Never use them in a pressure canner.

planning your garden before canning

Plan the types of foods you want to preserve before you plant your garden in the spring. For example, if you plan to can or freeze large quantities of tomato juice, any good tomato will do. On the other hand, if you want catsup, spaghetti sauce, or chili sauce, you should plant Italian plum tomatoes. Good seed houses should indicate clearly which cucumbers are appropriate for slicing fresh and which are suited for pickling.

It is a good idea to stagger the planting dates of vegetables so that the harvest is manageable and the family isn't leaving for a week at the shore just when the cucum-

bers are perfect for making gherkins.

Fruits and vegetables should be picked at the peak of their maturity. Overripe or partially spoiled products, no matter how reasonably priced at the farmers' stand, should never be used for preserving. When gathering from one's own garden, pick vegetables late in the afternoon or early in the evening, but pick berries early in the day.

A particularly informative seed catalog for those planning to plant for preserving is the one issued by Johnny's Selected Seeds, Albion, Maine 04910. Phone 207-437-9294.

Books for Preserving Foods

**Ball Blue Book: The Guide to Home Canning and Freezing*, Ball Corporation, edition 31, Muncie, Indiana, 1986.

**Fancy Pantry*, Helen Witty, Workman Publishing, New York, 1986.

**Farm Journal's Freezing and Canning Cookbook*, Farm Journal editors, et al., rev ed., Doubleday, New York, 1987.

The Good Cook: Preserving, Editors of Time-Life Books, Time-Life, Alexandria, Virginia, 1981.

**Putting Food By*, Ruth Hertzberg et al., 3rd ed., Stephen Greene Press, Brattleboro, Vermont, 1982.

*These books are available at the Cookbook Stall at the Reading Terminal Market at 12th & Filbert Streets in Philadelphia. Proprietor Nancy Markus will also have a table at the Harvest Show in the trade area and these books as well as many others about preserving foods will be on hand. Stop by and take a look.

Defining Terms for the Harvest Show Schedule

Jelly:	Made from the strained juice of fruit. It should be crystal clear and shimmering.
Jam:	Made from crushed or chopped whole fruit.
Butters:	Reductions of pureed fruit. Spices are sometimes added. Less sugar is used than in jams and jellies.
Marmalade:	Soft fruit jellies containing small pieces of fruit or peel evenly suspended in the transparent jelly.
Preserves:	Whole fruit boiled in a sugar syrup. The fruit retains its shape but is tender and plump.
Conserves:	A jam-like combination of two or more fruits containing nuts and raisins.
Chutney:	A fruit relish with spices.

Richard Bitner gardens in Lancaster County. An anesthesiologist, he is Medical Director of the Day Surgery Center, Reading, Pa. He has won dozens of blue ribbons for his jams and jellies and is chair of the Preserved Products Section of the PHS Harvest Show.

TWO HARVEST TABLES

the present and the past

photos by John Gouker



WEST CHESTER GARDEN CLUB

the present

The table glitters with jars of preserves, fresh cut flowers and the warm autumny tones of dried flowers. Vegetables spill in profusion from a cornucopia, bounty gathered from the West Chester Garden Club members for their entry at the Harvest Show.

The impeccable display won the Club the PHS Harvest Show Certificate in the 1986 Harvest Table class, and their points helped win the Pennsylvania Horticultural Society Sweepstakes for an organization winning the greatest number of Blue Ribbons at the Show (17 blues).

GARDEN OF GETHSEMANE

**Pearl and Conestoga Street,
A Community Garden**

a table that speaks of today's bounty and celebrates yesterday's traditions



THE WAY THINGS WERE

 *by Blanche Epps*

This Harvest Table was built around gardeners' memories of growing up in the South at a time when gardens provided for most of their needs.

Seeds were passed from generation to generation. A big iron kettle boiled in the

yard from June to October holding jelly or jam, soap or cough syrup, meat from hunting, or apple butter in turn.

Toothbrushes were made from oak branches. Salves and scents and medicines were homemade. Most everything a family smoked, drank, ate, or played with came from the land.

Many of these memories are alive today in new ways in city gardens; produce from our Garden was used to create the items in the 1986 exhibit.

VANITY TRAY

Tansy Bug Repellent
Lavender Face Soap
Herbal Scent Bag
Make-up Removal Soap
Herbal Linament
Herbal Toothpaste
Herbal After-Bath-Oil
Mint Mouthwash
Ginger Perfume
Astringents
Okra Bloom Eyewash

continued

We kept the tray in the best front bedroom for company. there was a bowl and pitcher on the washstand.

I never used Colgate till I came North — always homemade herb tooth powder — and I never had a cavity till I started using commercial toothpaste.

HUNTERS' BASKET

Millet Cider "drebs"
Fruit Brandy
Froggy Cookies
Cornpone
Flowerbread
Plug of Apple Tobacco
Sitting Soap — rose-sage-thyme-basil-tansy
Herbal Toothpaste
Ginger Beer
Peanut Brittle

When the men went hunting gater, possum, coon, or went night-fishing, they took along their dogs and a basket-full of provisions.

They told old stories and hunting tales around the campfire: "See that limb there, that second limb by the third star on the right there, well, that's where Bertha treed that coon once. You see, we was..."

PREACHER'S BUFFET

Sweet Potato Pie
White Potato Pie
Herb Loaf
Carrot Cookies
Herb-Corn Muffins
Deep Dish Peach Pie

Every Sunday the preacher came to dinner because my grandma was the best cook in Kershaw County. We set out a buffet on the long dining room table and took off the dishes as they were done.

We kids hated the preacher and his kids and their big appetites, because we weren't allowed to touch a thing till they were done and there was little enough left at that.

GRIEF BASKET

Chow-Chow
Fruit Relish
Potato Butter
Beet Jam
Blackberry Vinegar
Dried Fruit
Horehound Candy
Rock Candy
Spirits

We kept the grief basket on the left-hand side of the door and filled it with what we could spare. When tragedy or grief would strike a neighbor, death or serious illness, you'd grab the basket and go to call.

The horehound candy helped your throat during all that talking.

Blanche Epps is a long-time master gardener in the Penn State Urban Gardening Program in Philadelphia where she occasionally runs workshops on downhome cooking from Kershaw County, trading recipes and saving and collecting heirloom seeds.

Printed courtesy of American Community Gardening Association, *Journal of Community Gardening*

Eggplants

PINK BRIDE EGGPLANT

beauty that's more than skin deep

 by John P. Swan

Take a poll among supermarket customers and 9 out of 10 will tell you that eggplants are purple. They would be thinking of the classic, bulky, pear-shaped cultivars that are usually the most commonly available eggplant (*Solanum melongena*).

But the gourmet gardener adventure-some enough to search through the specialty seed catalogs can have great fun experimenting with distinctively different white, green, even orange varieties ranging from egg-like to long slim forms.

'Pink Bride' is one such exceptional eggplant both delicious in dishes and attractive in the garden. It has a delicate skin and fewer seeds than other eggplants. The fruit is slender and straight, sporting a satiny white skin with contrasting pink-violet markings. Plants are medium size, compact and well branched. The abun-



dant clusters of fruit tend to weigh the plant down so that support is needed. We stake the plants when the fruit is beginning to form. The best harvest size is about 7 to 8 in. in length and about 2 in. in diameter. The fruit should have a firm feel, not soft, to be at its table best. Use pruning shears or a sharp knife to cut the tough stems. Trying to pull the fruit off can injure the plant.

Unlike the standard purple cultivars that can turn bitter when overripe, 'Pink Bride' holds its flavor well. Fruit production, however, may be reduced if you leave the fruit on too long in hopes of harvesting a giant eggplant. The more you pick at proper harvest size, the more you'll get.

eggplant basics

Start seeds indoors 6 to 9 weeks before

continued

Eggplants

you expect to set plants out. Keep the soil medium near 80°F and you'll get the best germination. They won't sprout very well below 65°F. We place the seed flats on the upper shelf of a three-tier fluorescent light grower to take advantage of the heat generated by the fluorescent tubes below. Electric heating cables or mats also work well.

don't let them catch a chill

Do not push the season. Chilling will stunt growth. Set young plants out when the daily temperature is over 70°. In the Philadelphia area this is usually around the last week of May. If the night temperature falls to 55°F cover your plants with Hot Kaps, cloches, or plastic buckets. Peach baskets will not protect the plants from the cold air.

A layer of black plastic mulch will absorb daytime heat, increase the soil temperature and hasten root development.

eggplants are sun worshippers

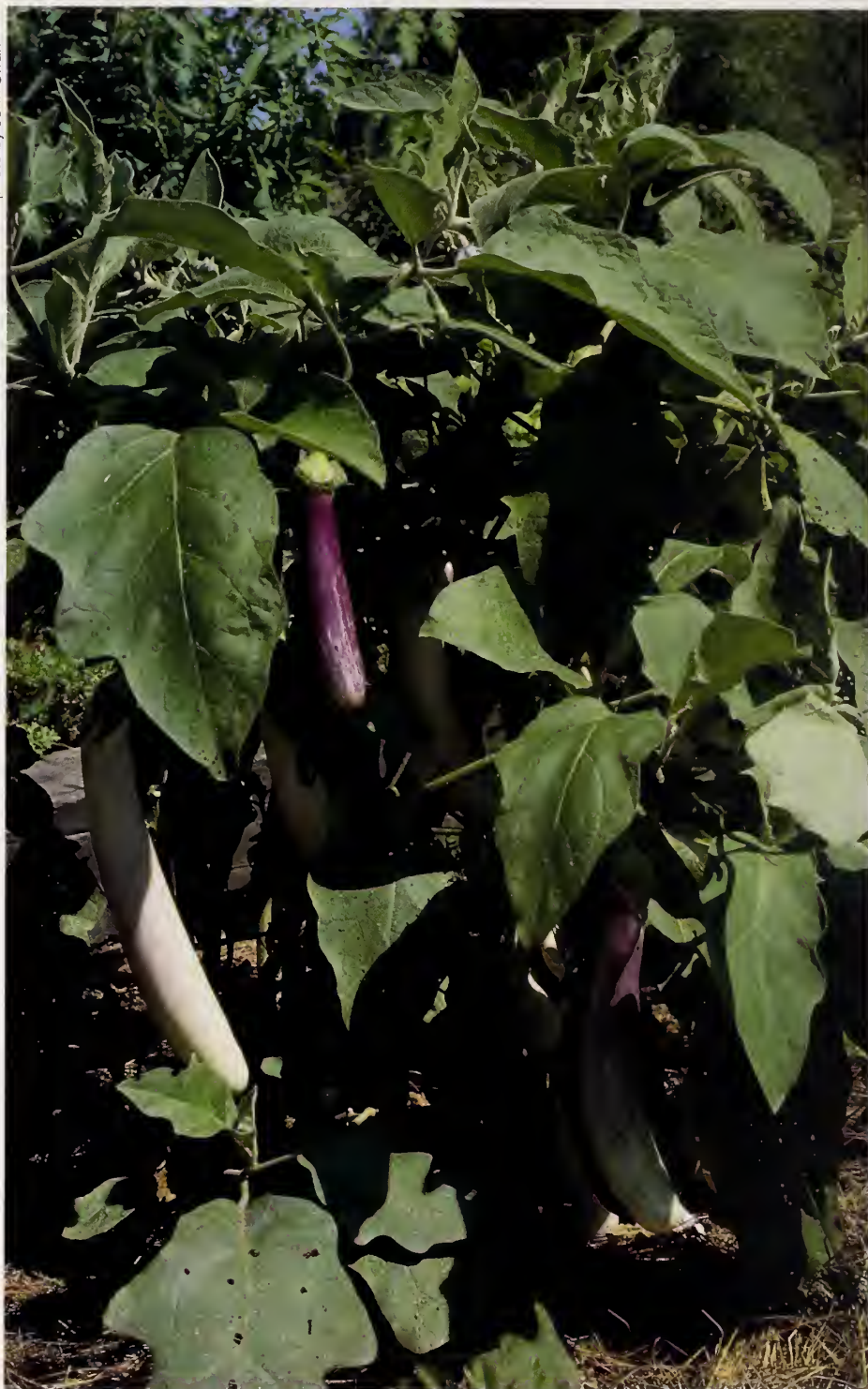
Give your eggplants the hottest, sun-drenched corner in your garden, and they'll think they're back home in the tropics. They also need a steady supply of moisture for uninterrupted growth. We plant 'Pink Bride' about 20 in. apart and spread a 3-in. layer of salt marsh hay mulch around the plants for weed control as well as moisture retention. Eggplants respond to rich soil with a high organic content. We mix in a palm full of 5-10-10 when planting and then side dress when the plants begin to set fruit.

basic health care

The eggplant is closely related to peppers, tomatoes and potatoes. It is not a good idea to plant eggplants where these crops have grown because of the possible build up of verticillium fungus disease in the soil. If your eggplants appear stunted, discolored and start to wilt, it's best to remove them because there is no cure for this disease. Best advice is to plant in virgin soil.

Flea beetles are the one insect pest we've encountered. You'll know you have them if the leaves become peppered with tiny pin pricks. You can live with the problem or apply, as we do, Sevin or malathion

photo by John Swan



The 'Pink Bride' eggplant at proper harvest size.

according to label directions.

the reward


Give eggplants the nurturing and care that their tropical upbringing requires and they will respond handsomely at picking time. Try growing 'Pink Bride' for a different kind of eggplant experience and enjoy a refined new flavor at your table.

Source:

Gleckler's Seedmen
Unusual Seed Specialties
Metamore, OH 43540

John Swan and his wife Ann garden in Chester County. He is a member of the Pennsylvania Horticultural Society Council and Flower Show Executive Committee. He is also a board member of the John Bartram Association.

THE EASTER EGGPLANT GROWN IN A CONTAINER

 by Évi Bossányi Loeb

I order my seeds for my container-grown eggplant from George W. Park Seed Co., Greenwood, South Carolina (*Solanum melongena ovigerum*). Follow the eggplant basics listed in John Swan's article in this section.

When four leaves develop, transplant to 2½ in. pots. Then keep under fluorescent lights, or after a short period of a few days' hardening off, place outdoors in subdued sunlight (after May 20 in our area).

The Easter eggplant, I think, is genetically cooperative. Meet its few needs halfway, and you have a plant that strives to please you. Other plants will brandish brown spots and edges, flaunt lordosis, or parade rot; happily this species is refreshing, a soul restorer, a resuscitator.

My Easter eggplants have almost exclusively been grown as pot plants. There have been as many as eight plants on our sunny terrace being groomed for Harvest Show entries. Two summers ago, a couple of plants were especially scrumptious with splendid mature velvety leaves and luscious creamy perfect oval fruits. Suddenly, within a week, lacy holes appeared on the leaves. Some pest was sabotaging my



photo by John Gouker

The author's Easter eggplant was a blue ribbon winner at last year's Harvest Show.

dreams of a Show ribbon. Al Russell of Churchville's Russell Gardens diagnosed caterpillars and prescribed Dipel, a safe biological insecticide with *Bacillus thuringiensis* as its active ingredient. I use about three tablespoons of powder per gallon of lukewarm water, and spray with a vengeance. The Dipel regimen gets results. You can snip off the lacy leaves. In about six weeks, fresh new leaves develop on the plants kept in full sun.

The Park catalog has listed this plant as


an ornamental; this year they describe it as edible as well. Blaine Bonham, director of Philadelphia Green, assured me several years ago at a Harvest Show that he has often eaten them cooked.

While my pots of Easter eggplants flourish as they grow in progressively larger and larger pots on the terrace, they are hose-fertilized with the No Clog Garden Feeder put out by Stern's Miracle Gro Products, Inc., which automatically mixes the diluted solution at the rate of one tablespoon to one gallon of water.

The violet colored flowers, which appear in midsummer, soon turn into Easter eggs in cream, yellow, and orange shades, smooth, lovely and symmetrical. Six to 12 eggs appear on a plant, which Park advertises as 12 in. plants. Many of mine have been taller. Friends who visit comment on the beauty of this plant.

Évi Bossányi Loeb is an enthusiastic award-winning exhibitor at the PHS Harvest Show and the Philadelphia Flower Show. She is a member of a number of local and national horticultural organizations. She gardens at her home in Jenkintown and her parents' estate-arboretum "Threebrooks" in Bucks County.

NOTES FROM AN EGGPLANT FAN

 by Jane G. Pepper

Eggplants are such favorites in our house that I couldn't resist adding a couple of words to the above articles. For the first few years of our gardening lives, we grew wonderful eggplant. Then verticillium wilt hit with a vengeance and for several successive years the plants lost all their leaves before they had a chance to produce fruit. We tried crop rotation, but since a significant portion of the garden is always occupied with eggplants and tomatoes, there just wasn't enough room to make a long enough rotation.

As an alternative, we started to grow eggplants in sterilized soil in large pots on the deck. It's solved the problem and we're back with enough fruits to keep my gardening partner happy for a couple of months

each summer. One caution here: use sterilized potting soil, rather than a soilless mixture. The latter is too light and the pots tend to blow over in the wind, and also they need much more watering with the soilless mixtures.

In the past we've tried Black Beauty, Dusky and Log Black Kulume, all of which worked well. This summer we tried Tycoon, a new variety recommended by Park Seed Co. (Greenwood, SC 29647) as "the earliest of all Oriental-type eggplants..." I would agree with them on this and also on their claim that it's a heavy yielder. Also, we think the Oriental-types are less likely to have bitter fruit, and soak up less oil or fat in cooking.

When it comes to cooking, here's a sug-

gestion to avoid the loads of breadcrumbs and oil that normally decorate fried eggplant. Peel fruit and cut into ½ in. to ¾ in. slices. Lay slices on paper towels, sprinkle with salt and leave for 20-30 mins. Peel 2-3 cloves of garlic, slice and heat them gently with butter (1 tbsp. is usually enough to cover sufficient eggplant slices for two people) until the butter turns light brown (don't overcook because you will produce bitter garlic). Mop excess moisture from eggplant with another paper towel and lay eggplant slices on greased cookie sheet. Brush slices with garlic butter and place under preheated broiler. Cook till they brown, then turn over and do the other sides.

Jane G. Pepper is PHS president.



Goose gourd contains strawflowers, globe amaranth, broom corn, black sorghum and white African sorghum. To make: thoroughly air dry a penguin or powder horn gourd for at least four months. Cut holes for side pockets with a sharp knife. Sand gourd with fine sandpaper until smooth and paint with Accent matte finish spray paint. Trim the natural stem and stain or paint to simulate a goose beak. Fill the pair of cut out pockets with oasis to hold the floral arrangement "wings." Eyes are dried green pokeberry.

DRYING ANNUALS

Summer Flowers - Winter Bouquets



by Helen Knauff, Rita Precopio and Leah Riband

To preserve annuals for winter bouquets all you minimally need is access to a small garden plot and a few weedy fields.

You can make lovely arrangements using only air-dried annuals that you've grown. Flowers that dry readily in the air are called everlastings. If you don't have experience with these materials, we recommend that you concentrate on growing and air drying before you succumb to the more fragile beauty of the flowers dried in silica gel. Even if you have lovely blooms from silica gel drying, you will need air-dried material to arrange with them. Check seed catalogs for special pages of everlastings; you will find pictures of many of these annuals.

plants to grow for air drying

The king and queen of annual everlastings are strawflowers, *Helichrysum* spp., standard and dwarf. The very large strawflowers, 2-4 in., are not grown in the Delaware Valley. If you think you don't like strawflowers, perhaps you've not seen homegrown ones. The difference between homegrown and commercial is about the same for strawflowers as it is for tomatoes.

For the gardeners with ample space, we recommend the standard variety of *H. monstrosum*. These rather unattractive plants grow 3-6 ft. tall in our gardens and are supported by sturdy stakes. The plants should be started indoors; we start ours in late March. Be sure to order seeds by color because most of the plants from color mixtures are likely to produce dark and unattractive flowers. We plant a double row of staggered plants about 18 in. apart. Paths between rows should be at least 3 ft. wide. Full sun is desirable, good drainage is essential and rotating the crop is recommended.

If you do not have conditions appropriate for standard strawflowers, don't be discouraged. The standard variety may be king, but the dwarf is queen of the everlastings. These plants grow 1-2 ft. tall, need only occasional light staking and need not be started indoors. The flowers produced by the dwarf strains are usually smaller, but the mixed color seeds provide a more attractive color range. The Bikini series is our favorite, and individual colors are available. The attractive plants bloom abundantly and are not as fussy about growing conditions.

Harvesting strawflowers is a bit of a challenge. The flowers open and close in response to moisture, so you should pick mid-day when conditions are dry. The flowers will continue to mature and open as they dry, so they must be harvested before their prime — the center must not be visible.



Celosia combs misted with water to prevent shattering were fastened to a molded styrofoam ring with greenning pins.

If picked too early, however, the form and color will not develop properly. Examining the first few flowers that have dried will quickly tell you the proper timing to use for picking for the rest of the summer. Experiment.

Since we wire all our strawflowers, we pick them with 1/4 in. to 1/2 in. stems, put them in a plastic bag and refrigerate until it is convenient to wire them. Some color may deteriorate after three days. We use #23 green wire, purchased in 18 in. lengths and cut in half or thirds. Insert the wire into the stem (freshly trimmed if necessary) until it just pierces the back of the flower. No hook is necessary. Place the wired flowers loosely in a tin can or vase until dry. When completely dry, they may be packaged in small bunches and stored in open boxes in a cool, dry, dark place.

Gomphrena globosa or globe amaranth is a lovely old everlasting. Flowers occur in purple, pink, bright pink, white, orange and dark orange. Most plants in the seed mixture will bear purple flowers, but if any other colors are found, you can save some large mature blooms and start your own strain. The larger, colored "petals" at the base of the flower heads contain the seeds, which we have found come true to color.

We start the seeds of this species indoors in late April because the seedlings need warmer weather to prosper. The orange variety has its own growth pattern; it is sprawling and grows 12-18 in. high. We plant in a double row of staggered plants about 12 in. apart. The other varieties are planted in the same formation except the plants are almost 18 in. apart. Mature plants will be about 24 in. high and may need a light stake for protection from wind and rain damage. Gomphrena is quite resistant to insect damage and drought, will tolerate some shade and covers itself with color in the late summer.

To harvest, simply pick when the flower heads are the size you need but before

the color begins to deteriorate. We also wire the gomphrena so we pick and refrigerate like the strawflowers. They are quite satisfactory, however, gathered with longer stems and air-dried.

Celosia is a garden beauty and indispensable for dried arrangements. Since varieties dry differently, be sure to try some of those we recommend; they have performed well for us. Good pink celosia is highly prized and hard to find. You can begin your own strain by planting mixed color seeds and saving seeds from the choice pink or watch the farmers' markets for fresh or dried heads containing seeds. Unfortunately the most desirable colors are often produced on the least disease resistant plants. Planting some seed in the fall instead of spring may produce stronger plants. It will be a challenge, but it's worth experimenting because you'll find endless uses for pink celosia.

Xeranthemum is a little known everlasting. The small daisy-shaped flowers are found in white and shades of pink through purple. Seeds should be sown where they will grow, in late May and covered with a little salt hay. The plants require sun and good drainage. The flowers with their natural stems can be air-dried but they are not as attractive as when dried for several days in silica gel.

A small white annual, easy to grow and harvest, is *Ammobium*. If you enjoy miniature arrangements, this is a must. Space plants about 12 in. apart in at least semi-sunny conditions. Harvest just as the center starts to show. They may be wired with a fine gauge #26 wire.

Salvia farinacea is a good source of blue in the garden and for air drying. Unfortunately the dried heads may bend in humid conditions. They will hold up better when allowed to mature before harvesting. *Salvia splendens*, the familiar red-flowered species, should be air-dried when the florets at the top show good color.

Several other annuals are easy to grow and dry and will add variety to your arrangements. Dusty miller is an excellent source of light gray; the form and color make it extremely useful. Broom corn and sorghums provide welcome texture. *Nigella* bears charming flowers, followed by interesting pods. Larkspur is found in wonderful colors; we air dry the hybrid varieties and use silica gel for the old-fashioned single varieties.

One of the most important everlastings, *Statice sinuata*, has been left till last because it is so easy to buy that we seldom grow it. It can be found in most colors and is available fresh during most of the year from florists and farmers' markets. It is not

continued

The pewter teapot contains strawflowers, crested celosia Red Velvet, globe amaranth, ammobium, larkspur, *Statice suworowii* and *Xeranthemum*, Silverdust dusty miller. ►

Below:

Flowers that have been dipped, tools and supplies for creating arrangements: long nose needlenose pliers, wire cutters, shears. Glues: Sobo, Bond's Tacky Paste, hot melt glue chips. Floral stem tape, Oasis tape, Standard Oasis or Sahara I. ▼



difficult to grow, but if space and time are limited, buy it. We recommend buying German statice and baby's breath in the fall as well as green sheet moss and gray Spanish moss for covering oasis. These are often found in craft stores.

Some of nature's bountiful weeds are wonderful for drying. Our favorite is goldenrod (*Solidago* sp.) which should be gathered when it is no more than half open. Dock (*Rumex* sp.) can be picked from May, when it is green, until late July, when it is dark brown. Also watch for white wild yarrow (*Achillea millefolium*) and graceful grasses.

TIP: Dry twice as much as you think you will need because everything shrinks when dried.

drying methods:

air drying:

- Harvest on a warm sunny day; plants must be dry.
- Watch timing – gather most materials just as they become mature.
- Strip foliage from stems and secure in small bundles with rubber bands.
- Hang so flower heads are upside down in a dark, dry, well-ventilated place. For a graceful drooping effect, dry some materials such as goldenrod and grasses upright in a container.

drying in silica gel*

Silica gel is a granular desiccant that removes moisture from the flowers. It is expensive but can be used indefinitely. When small blue crystals in the mixture turn pink, moisture has been fully absorbed. To renew its drying power, place gel in shallow pans and bake at about 250° for half an hour or more until indicator crystals turn blue again. Remove from oven and immediately pour hot crystals into airtight storage cans. When cool, it is ready to use.

- Condition flowers by placing stems in water for several hours, or until petals are turgid. The flower exterior must be perfectly dry.

- Select plastic or tin containers with airtight lids and cover bottom with about one

*Silica gel is marketed under different trade names, e.g., Flower Dri.

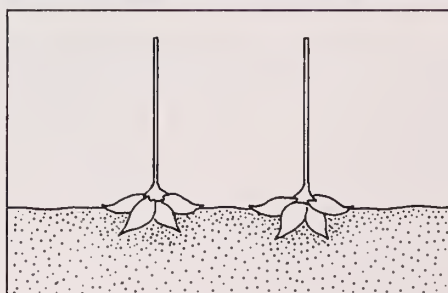
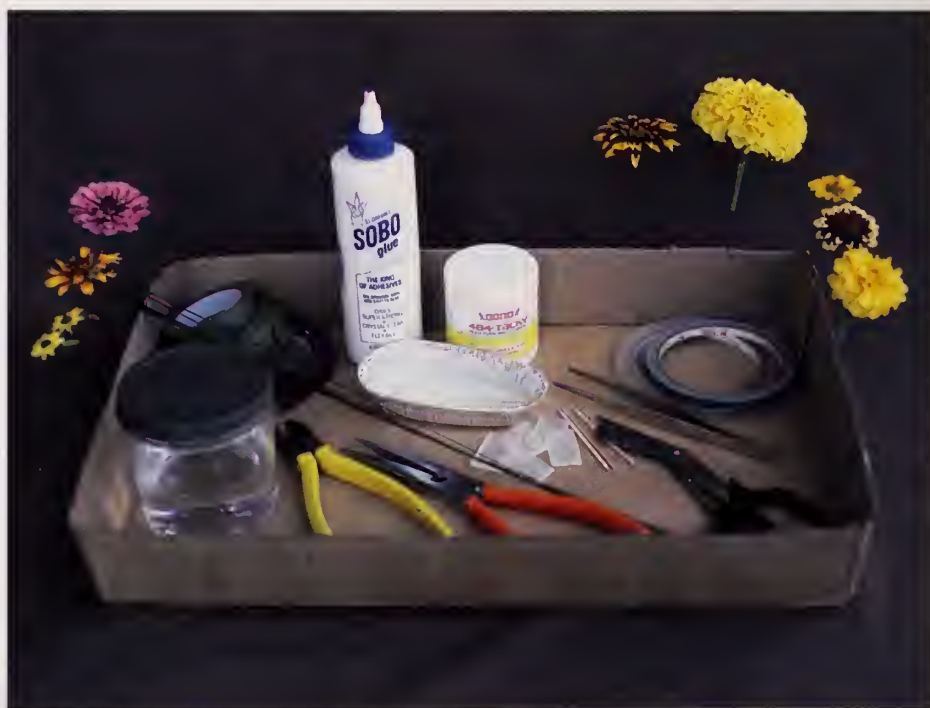


Fig. 1. Flowers face down

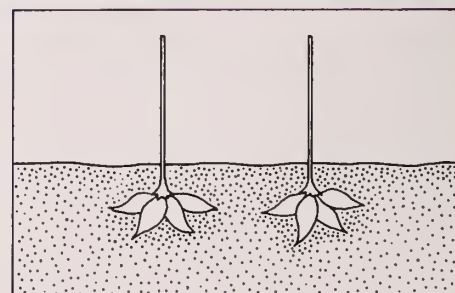


Fig. 2. Completely covered face down



To make an arrangement: 1. Put dry oasis in container so it extends about 1/2 in. above the edge and cover surface loosely with sheet moss or Spanish moss. 2. Add some spike materials to define the shape, as in bowl on left. 3. Add solid material for color and texture, as in bowl on right. 4. Add rest of flowers and more spike material if desired. Note: Use only durable flowers at the lower edge, and place all fragile ones so that nothing touches their petals.

Below:

Moss basket arrangement contains First Lady and Super Star orange marigolds, blue larkspur, Blue Mink ageratum, *Statice sinuata*, strawflowers, globe amaranth, Old Mexico zinnia, Silverdust dusty miller, *Artemesia annua* and Irish lace species marigold.

Moss basket is made from plastic of florist mache container with bittersweet or grapevine handle securely wired on inside of container. Handle must be thoroughly dried before attaching. Sheet moss is then glued on outside with tacky glue.



half inch of crystals; use more if flowers are to be dried face up.

- Place daisy-shaped flowers (wired if desired) face down in a single layer so they are not touching each other. Flowers that are more complex are usually dried face up. A short stem or bent wire is necessary for a face up position. Sprays, such as larkspur, can be dried horizontally. (See illustrations.)

- Carefully sprinkle crystals until all the flowers are buried.

- Put on airtight lid, label with date and contents and place in a warm, dry location. Two days to one week may be required.

- When they are dry (check one flower to be sure), gently pour off crystals and lift flowers out. Be prepared to store properly as described under "Problems."

drying in sand

We use white playbox sand (not builder's sand) to dry daisies and many zinnias. The procedure is the same as above except the container is **not covered**. Since this is air-drying of buried flowers, a longer, indefinite time is required, and the sand needs no treatment.

problems

A dried material will reabsorb moisture when the air is humid. During the summer, most flowers from silica gel should be stored in a large airtight container with a cup or more of silica gel crystals. (We use Tupperware or Rubbermaid or any good airtight cookie tin. Check for moisture every two or three weeks.) The crystals must be replaced when they turn pink. Flowers like zinnias must be stored on styrofoam to preserve their shape. We dip most of our flowers, dried by burying, in a lacquer solution. On a very dry day, we dip the *crispy-dry* flowers into satin-finish lacquer, diluted 50% with lacquer thinner. This treatment helps to protect from humidity and shatter-

continued

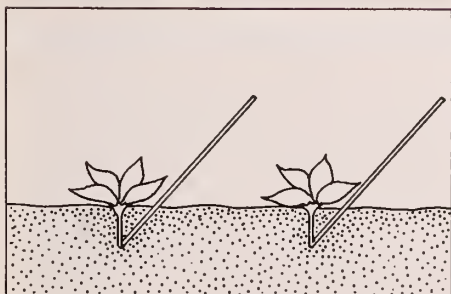


Fig. 3. Flowers face up with wired stems bent up

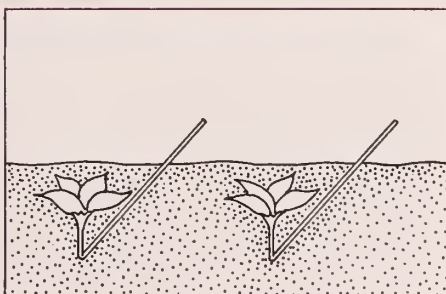


Fig. 4. Completely covered face up



Luminaria containers:

Small glass contains annual phlox Twinkle and dill foliage.

Hurricane globe contains Bright Lights cosmos, BlueBoy cornflower (individually pressed petals), dill foliage, gourd tendrils for stems.

To make Luminaria:

1. Lay out pressed material in the design you wish to use.
2. Tear veil* paper into irregular shapes with feathery edges. Pieces should be of appropriate size for the item to be covered and must be torn to fit together with slight overlapping.
3. Dilute white glue (such as Elmer's or Sobo) slightly with water in a soda bottle cap. Stir thoroughly; be sure there are **no** lumps. Brush dilute glue on small area of glass object.
4. Carefully place pieces of veil paper over glue, overlapping slightly.
5. Carefully pat each piece lightly with a small damp sponge. Continue until glass is covered with veil paper.
6. Glue the pressed flowers onto the paper-covered glass in the design you have created.
7. Cover the entire item with another layer of glue and torn veil paper.
Option: the design may be glued directly to the glass and then covered with one layer of glue and torn veil paper.
8. When glass is completely dry, clean top edge carefully with a single-edge razor blade. Spray lightly with two coats of clear acrylic matte finish spray or brush two coats of a similar coating.

* The Japanese veil paper used in this project is called Sakuragami and is available from:

TAKASHIMAYA, Inc.

509 Fifth Ave.

New York, New York 10017

Our Favorite Annuals for Drying

Drying methods: A (air drying), (S) sand, (SG) silica gel

Seed can be sown directly into the garden:

Celosia cristata – pink and crimson Floradale, Red Velvet and Fireglow (A)

Celosia plumosa – Apricot Brandy, Century, Red Fox (A)

Gomphrena globosa – mixed colors and Haageana (A)

Helichrysum spp. – dwarf strawflowers - Bikini (A)

Larkspur – all varieties (A) and (SG)

Marigold – Petite or Boy series, First Lady and Super Star Orange (SG)

Sanvitalia-procumbens (S) and (SG)

Zinnia – Cut and Come Again, Persian Carpet, Old Mexico (S) or (SG)

Xeranthemum – (SG) or (A)

Seed started indoors by early April:

Helichrysum spp. – large strawflowers (A)

Marigold – Nugget series (SG)

Salvia farinacea – Victoris (A)

Other annuals that we use: *Ageratum* Blue Mink (SG), *Ammobium* (A), broom corn (A), dusty miller (A), Irish Lace marigold (A), *Nigella* pods (A), *Salvia splendens* (A), sorghums (A), *Statice suworowii* (A), zinnias: Whirligig, Tom Thumb and Classic or Linearis (S) or (SG). Seeds are available in W. Atlee Burpee, George W. Park Seed Co., Stokes Seeds, Inc. or Thompson and Morgan seed catalogs.

we sometimes help Mother Nature by lightly spraying with a floral paint that matches the natural color of the flower.

Insect damage, caused by beetle larva, will cause flowers to shatter. You can prevent this by freezing arrangements for 24 hours several times a year. Another solution is to enclose the arrangement with an insecticide strip in a plastic bag for a week.

Fragile natural stems can ruin a good arrangement and a sunny disposition, so we wire most flowers. Except for a few large heads, a straight wire is simply inserted through the stem into the flower head. As the stem dries it will shrink and tighten around the wire. For large marigolds and zinnias, insert a wire all the way through the stem and flower and make a small hook on the wire. Gently pull it back into the flower until the hook is hidden. All wiring must be done when flowers are fresh. An all-purpose size of green wire pieces is #23 gauge, but heavier pieces, such as #20 gauge will sometimes be needed. Wire also extends short stems using floral tape when arranging.

The name "everlasting" is not to be taken literally; "long-lasting" is much more accurate. We have not solved the problem of dust and dirt on an old arrangement. When flowers are fresh, you will enjoy them for a week or two at best. When they are dried you will enjoy them for many months, perhaps a few years. Compare them to fresh flowers or house plants and enjoy.

While you are enjoying drying some of the annuals we have suggested, don't overlook the many lovely perennials, which also dry well. With patience, curiosity and a sense of humor you are sure to have your summer flowers in your winter bouquets.

For More Information

The Art of Colonial Flower Arranging. Jean C. Clark, The Pyne Press, Princeton, 1974.

The Decorative Art of Dried Flower Arrangement. Georgia S. Vance, Doubleday and Company, New York, 1972.

"Drying Flowers for Color Throughout the Year," Rita Precopio and Helen Knauff. *The Green Scene*, Vol. 6, No. 6, pp. 34-37, July/August 1978.

A Gardener's Guide for Drying Flowers. Helen Knauff and Rita Precopio. 1974.

Preserved Flowers. Roberta Moffitt, Wilmington, Delaware, 1978.

All are available at the Pennsylvania Horticultural Society Library.

Helen Knauff, Rita Precopio and Leah Riband dry flowers as an extension of their gardening experiences. They are members of the Outdoor Gardeners and the Pennsylvania Horticultural Society and give lectures, workshops and demonstrations throughout the Delaware Valley. Knauff and Precopio have also co-authored a booklet, *A Gardener's Guide for Drying Flowers*.

ing; unfortunately it cannot be used on delicate flowers.

Color change is another problem. Colors usually darken, so it is best to begin with

lighter shades. Some flowers, especially zinnias, do not have stable colors and they fade when exposed to humidity or strong light. Except for those used in competition,

CONCRETE GARDENING



by William D. Coppens

photos by William D. Coppens



Grape—'Golden Muscat'—growing in a five gallon bucket. If you look closely, you can see some grapes on the vines (about 4 o'clock).

Ridiculed, criticized and often ignored by many garden enthusiasts who believe that alternate growing methods are questionable, container gardeners remain determined in their quest for the ideal "mini garden." These pioneers of the "concrete jungle" represent a step forward in horticultural progress. Their goal is to master the techniques of producing a substantial amount of fruits and vegetables, without sacrificing flavor and nutritional value, in a portable area no greater than a square foot.

Using trash cans, peach baskets, wooden boxes and just about anything that will hold some soil, the exploratory efforts of container gardeners have paved the way for what I consider to be three perfect growing devices: the plastic utility carrier resembling a milk crate, the five gallon plastic construction pail and the square or round clothes basket. Each of these receptacles has its own special characteristic in helping to produce an abundance of fruits and vegetables.

the containers

An ordinary plastic utility carrier, which has a one square foot area, four sides, a bottom and is available in a variety of colors, has hand molded openings built into the top of at least two sides, making it emi-

continued



◀ Author's 1985 Harvest Show crates and buckets netted 13 blue ribbons.

The author was harvesting carrots from the crates as far back as 1981.



nently portable. They are relatively inexpensive, costing from \$1.00 to \$3.00 at local housewares outlets and odd lot stores. Still another excellent feature of the utility carrier is its square shape. This splendid design allows you to use every inch of space, bearing quality vegetables and yielding a crop that will make you the envy of every backyard farmer in the neighborhood.

One portable "mini garden" can produce 16 beets, 16 carrots, four lettuce, four celery or four swiss chard plants just to name a few of the many shallow-rooted vegetables that can be grown in the carrier with pleasing results.

Still another advantage of the utility crate is the openings already incorporated into its structure. By lining the crate with ordinary aluminum window screen, you retain the soil and allow for the aeration and drainage essential for continued plant growth.

To line each crate, you need 5 square feet of aluminum window screening. That is one square foot for each of the four sides and bottom. The cost is approximately 69 cents per 2 square feet, since the narrowest mesh available is 2 feet wide. Although the sides and bottom of the crate measure 12 inches, the depth is slightly smaller. Therefore, I cut this dimension of the sides only 10 inches.

The next container that I use is the five gallon plastic construction pail or all-purpose bucket. Since the first pails housed drywall joint compound, they were not as readily available, except at a construction site. Fortunately, a neighbor of mine worked in the building trade and has access to these discarded plastic orphans. As a result, I have accumulated 45 of these buckets over six years. Now they are sold at some home improvement centers for \$1.69 per bucket.

To prepare the plastic bucket for growing vegetables, you'll need an electric drill motor and a $\frac{3}{8}$ -in. diameter carbide drill bit. First, invert the bucket so the bottom faces up. Then drill a series of 35 holes spaced approximately 2 inches apart on the bottom of the five gallon pail. The holes will allow adequate drainage and the established plant root system will retain the soil, so you needn't add stones or screening.

The most recent addition to my concrete gardening program is one of the most challenging of my container collection: a clothes carrier or laundry basket. Available in a variety of shapes and sizes these plastic baskets can be readily purchased at any housewares store for a reasonable price. Similar to the utility carrier, the laundry basket has large openings through its structure as well as built-in handles for

easy transportation.

To prepare the plastic laundry basket for the growing process, add both screening material and holes in the bottom of the unit. Once again, using an electric drill and a $\frac{3}{8}$ -in. diameter carbide bit and inverting the bottom upward, bore 50 to 60 holes every two inches over entire bottom of the basket.

Next, take a 2 ft. x 6 ft. section of aluminum screening material and, using a pair of wire shears, cut the 2-ft. dimension exactly in half so that you will have 2 pieces of mesh that measure 1 ft. wide x 6 ft. long. Fit one piece along the inside perimeter of the laundry basket. If the basket is more round or oval in shape, make relief cuts so the screening fits neatly and snugly against the sides. No screening is needed to line the bottom of the container, so the remaining piece of mesh can be used for another basket.

the soilless mixes

The next stage of the program is the most crucial element: the soil or soilless mixture.

Basically, the three principal parts of soilless mixes are: sphagnum peat moss, horticultural grade vermiculite and perlite.

When I first began to garden in containers eight years ago, I bought all these com-



◀ Thirty foot walkway space nicely houses crates and five gallon buckets.

Pepper 'Serrano' and six sweet potato plants, variety 'Puerto Rico.'

ponents separately and created my own mix. That method worked fine for two years. Then I found that the premixed mediums on the market were actually less expensive and the manufacturer's additives in the mix were more beneficial for plant growth. Mediums such as Redi Earth, Metro Mix, Peters Professional Potting Soil and Pro Mix BX all contain the three main essentials, but many contain a starter fertilizer, sand and a wetting agent, which decreases the soil's surface tension and allows the water to be absorbed more readily.

For a few years I used Pro Mix BX. The results were satisfactory; everything I had grown was at the peak of perfection. Or so I thought. I encountered a few problems: for example, the BX medium is compressed so tightly that in order to fill a container I had to break by hand all of the soil and, since there is no wetting agent in the mix, I had to pre-moisten the soil, which took more than two hours for the water to be thoroughly absorbed. By midsummer, with the roots well established in the containers, the BX soil had a tendency to dry out and rewatering was time-consuming since I had nearly 75 receptacles to care for each day.

Two years ago I began searching for another pre-mixed soilless medium to replace Pro Mix. Fortunately, I happened

continued





Bill and Mary Coppens' 1986 Harvest Show exhibit featured 20 containers in a 12 ft. x 6 ft. space.

upon two of the best soil mixes on the market today: Metro Mix and Peters Professional Potting Soil. Both are excellent choices, but of the two I prefer Peters Professional — not only because it contains a wetting agent and can be purchased in non-compressed packaging, but mostly because of its outstanding performance record. My harvest increased considerably and actual watering time was reduced.

Regardless of which soilless medium you choose, filling any of the three types of containers in the concrete gardening program will require a volume of one cubic foot. In some cases, the laundry basket will probably consume slightly more than a cubic foot.

Many gardening novices who venture into container growing tend to bend the rules by using garden soil for their receptacles. I advise against that because ordinary earthbound soil contains disease and fungus organisms and packs down, because it's confined, smothering the roots. The results are poor, ranging from stunted growth to low production and sometimes dead plants.

fertilizers

Finally, to ensure continued plant growth and quality results for all crops raised in the concrete garden: fertilize. The plant nutrient should be a water-soluble powder or liquid type, because they are made specifically for container gardening.

Throughout the years, I have used Miracle-Gro, Ra-pid-Gro, Schultz and a variety of the Peters Special fertilizers. Of all these products Peters Special is, by far, the best choice. For example, the Peters All Purpose Special (20-20-20) not only supplies the three main elements of nitrogen, phosphorus and potassium, but it is also a source of the many trace minerals each plant needs. Therefore, a regular schedule with the Peters 20-20-20 every seven to 14

days will ensure a rewarding harvest by season's end.

In short, the concrete gardening system is not designed only for cement walkways, landings and porches but can also be used on terraces, roof tops and asphalt areas as well. Anything that can be raised in the backyard garden can also be grown in the container with a grand harvest.

A list of the quantity and varieties of vegetables and fruits that can be grown in the concrete gardening program follows:

the utility carrier (per crate)

16 beets	4 spinach
16 carrots	4 celery
4 cucumbers	1 sweet potato
4 lettuces	1 bush squash
4 endives	1 rhubarb
4 chicories	4 swiss chard

the 5 gallon pail (per pail)

1 tomato plant	1 okra
----------------	--------

1 pepper	1 fig tree
1 cabbage	1 raspberry, blueberry, or gooseberry
1 cauliflower	1 grape
1 broccoli	
1 eggplant	

the laundry basket

6 to 8 sweet potato
4 rhubarb
1 squash or melon

Bill Coppens has won three first prizes and three second place awards in the Philadelphia City Gardens Contest. Since 1981 he has participated in the Harvest Show, winning well over 100 ribbons, including 51 blues. He has also won two Harvest Show Gardener Sweepstakes Certificates. Last year, Bill and Mary Coppens excited a lot of interest with the concrete gardening exhibit at the Harvest Show. They plan to introduce Concrete Gardening II this year, which they promise will be bigger and better than last year's.

AN INVITATION TO PLANT SOCIETIES ... send us your plans for 1988

We will publish information about one major sale and one major event for each area plant society from January 1, 1988 through December 31, 1988. Send the information to Carol Lukens (Green Scene, 325 Walnut St., Phila. 19103. Phone 625-8263) by November 1, 1987. Please use the following format:

NAME OF CHAPTER AND SOCIETY

	Event #1	Event #2
Name of Event	_____	_____
Dates of Event	_____	_____
Time of Event	_____	_____
Location (full address)	_____	_____
	_____	_____
Fee, if any	_____	_____
Name of contact person	_____	_____
Address	_____	_____
	_____	_____

The Mini-Flora

AN INDOOR—OUTDOOR ROSE

 by **Amalie Adler Ascher**

Every once in a while a plant is hybridized that combines all the best features of its breed rolled into one. The Mini-Flora® rose is such a plant; it could even be called a composite of the rose.

A statuesque version of the miniatures — which run from 10 to 15 inches tall — the Mini-Flora overtops them to reach a height of at the most 2 feet. But whereas the blooms of the miniatures are tiny and fairy-like with ferny foliage, the Mini-Flora roses have the flower form and single stem of the hybrid teas as well as their broad, waxy foliage.

Mini-Flora roses are bushy and heavy blossoming, too, having inherited those traits from the floribundas.

The name, Mini-Flora, was conceived for this special line of big minis or patio-type roses by J. Benjamin Williams of Silver Spring, Maryland, who holds the trademark on the name. The first of the Mini-Flora roses he hybridized was Patio Patty, a blend of peach, yellow and orange-red, created in a four-way cross between Circus, Sweet Repose and Little Darling, three outstanding floribundas, and Starina, a top-rated miniature.

A breeder of some 150 roses of all types, Williams has a long list of honors to his credit. His Rose Parade — a standard size floribunda — won an All-America Rose Selections medal in 1975. Another of his roses that he is particularly proud of is Red Fountains, which he says is rated one of the best of the red climbers. It has an uncanny ability to endure extreme drought, demonstrated by its survival with absolutely no care in highway plantings made in 1975. Against all odds, it blooms without letup and is fragrant as well.

The Mini-Flora roses, Williams says, are survivors as well. The reason they are so rugged and hardy is that unlike the hybrid teas that are grafted to a different rootstock, the Mini-Flora grow on their roots. "That's the requisite element of the Mini-

photo courtesy of Conard-Pyle Co



Amber Flash, the best of the Mini-flora.

Flora," Williams says, "it must propagate well on its own root. Should it freeze to the ground, it'll come back because it has its own root to fall back on to send up new shoots." By holding to their own root, Mini-Flora roses also overcome the problem of developing suckers of an alien root that if allowed to remain and multiply would eventually take a plant over. "With the Mini-Flora," says Williams, "you're dealing with one clone, not with two mixed roses."

Mini-Flora, moreover, stays compact and low to the ground. Its blooms, leaves and stem stay in balance with one another

as well as with the pot, should it be growing in one. "You wouldn't want a rose that's a miniature to combine a big bloom with insignificant foliage, or one that looks lost in its pot," Williams declares. "Suppose, for example, you were dealing with a 6-in. pot. If it were planted with an ordinary miniature, you might have to wait a year or two for the plant to reach a size large enough to fill it. With a Mini-Flora, on the other hand, the plant-to-pot ratio evens out much sooner. A Mini-Flora produced by a commercial grower in a 4-in. pot will be in proportion to it," Williams explains. If the buyer

continued

photo supplied by J. Benjamin Williams



Mini-flora Rose Astra, perfect as a ground cover, rock garden plant or for hanging baskets.

photo courtesy of Conard-Pyle Co.



Mini-flora Stardance.

photo supplied by J. Benjamin Williams



This garden was installed in two days using 1600 Mini-flora roses and other dwarf plants.

Mini-flora breeder Ben Williams in his greenhouse.



photo supplied by J. Benjamin Williams

then moves the plant to a larger container and cuts it back, it will quickly increase in size to fit its new quarters, although not exceed its prescribed height. The effect will be one of a sort of mound.

In a larger planter or tub, one Mini-Flora would not be enough. You'd need several, perhaps three or four, depending on the size of the planter. To create a garden-like effect, you might want to fill around them with regular miniatures. If you're working with several Mini-Flora, you may see some minor variations between different cultivars. Even so, they'll all be similar in growth habit, size of bloom, stem and foliage.

Mini-Flora roses can be planted in the ground as well as in containers. They're ideal, Williams says, for borders and massing. The old miniatures carried the genes of *Rosa roulettii* in their make-up. (When it was released in 1920, *Rosa roulettii* was promoted as "the smallest rose in the world.") *Rosa roulettii* had the regrettable trait, though, of growing into a big, rambling shrub in two or three years, providing it escaped freezing in the winter, and was left to its own devices. Even a Mini-Flora, however, if not pruned will get tall and leggy. Over the years, the miniature line has been improved by breeding into it the characteristics of the floribundas and hybrid teas.

In the case of the Mini-Flora, breeding is generally carried on with the pollen of miniatures, with floribundas being used as the parents. Somewhere along the line, though, a few hybrid teas have, more than likely, been in the picture. The progeny from the crosses made for the Mini-Flora could run the gamut of miniatures of standard size to larger plants almost as large as floribundas. But for a miniature-type rose to rate the stamp of Williams's trademark, it must be larger than an average miniature and smaller than a floribunda, as well as propagate true to type and demonstrate all of the other attributes.

"Few people realize," Williams says, "that each new rose we've developed has undergone from six to 10 years of field work and testing, and each one has cost the breeders from \$500 to \$3,000 to produce. The introducer, for example an organization like Conard-Pyle, will spend another \$2,000 - \$5,000 to obtain a patent and promote sales to the trade."

indoors

As notable an asset of the Mini-Flora as any is its capacity to grow in the house. More and more, Williams says, the Mini-Flora is preferred in the pot-forcing trade to other house plants, especially those raised for the holidays. It's being grown all

over the country.

Impressions to the contrary, Mini-Flora roses grown indoors do not have to grow under lights. A good sunny window, with direct sunlight - southern exposure - suits them fine.

If when you bring a Mini-Flora home from the store, the leaves begin to turn yellow and drop off, don't be alarmed, says Williams. The plant is only readjusting to the change from ideal conditions in a greenhouse to less favorable ones in the house. He recommends moving the plant to the next size larger pot, cut it back and set it where you want it to grow. Williams practically guarantees the rose will put out beautiful foliage and bloom just as though it were in the greenhouse. Mini-Flora doesn't drop its foliage like the old-time miniatures did, he says.

Except for red spider, which poses the greatest threat to roses grown indoors, little else disturbs them. Black spot and mildew should raise no concern, since the circumstances that foster their spread - earth-borne spores splashing from the ground onto the leaves - are virtually non-existent in the house.

Spider mites, Williams says, can be controlled if you take your Mini-Flora to the sink every week or two, turn the pot upside-down, holding a paper towel over the soil and the plant's stem between your fingers to prevent its falling out, and flush the underside of the leaves, in particular, with water.

To prepare a Mini-Flora that's been summing in a pot on the patio for the move indoors, continue to keep it moist through the fall, and when it has finished blooming, along about Thanksgiving, sink the pot in the ground or cover it with leaves or mulch and let it rest, but not dry out. Just before a hard freeze - in late December or early January depending on where you live - cut the plant about a third of the way back, remove the outer pot and bring the plant indoors. Set in a favorable location, it will put out new growth and bloom. (A plant you've had growing in the ground and want to display indoors, can also be dug and potted around this time.) If you live in an apartment, you can simulate the same conditions by double potting the plant, i.e., placing a layer of pebbles in the bottom of the larger pot and then setting the pot holding the plant in it. To keep soil temperatures and moisture uniform, fill the space between the two pots with soil and push the plant against a wall for protection.

outdoors

When it's time to move it out to the terrace again, cut it back then too. In fact,

Williams says, every time you cut a Mini-Flora back, you'll double the number of blooms, because two eyes will be produced to branch on each stem. A leggy plant should be cut back too and faded blossoms removed. Pruning a little at a time staggers bloom over a longer period, as opposed to overall pruning, which will create a great flush of bloom all at once. To attain good blooming and vigorous plants in the house, Williams says to keep them watered and fertilized with a balanced soluble fertilizer (according to the directions on the package) about once a week. Actually, it would be better, he says, to fertilize more often at half the recommended strength. More fertilizer, however, doesn't necessarily produce better plants and more flowers.

Mini-Flora grown outdoors should be treated like other roses. Provide them with a sunny location in rich, well-drained soil. Water to the extent that the soil is kept moist, and feed monthly with a good rose fertilizer. Spraying with an all-purpose rose spray according to directions on the package helps to prevent damage from insects and disease.

Williams calls Amber Flash, a blend of orange and yellow, the best of his Mini-Flora. It's a top performer indoors. Others in the line include Scarlet Sunblaze with deep scarlet blooms, Stardance with white flowers accented in yellow, Astra whose blossoms are dogwood-pink, and Orange or Pink Sunblaze.

Williams is an independent breeder, commissioning others to grow and test for him; he supervises the process. He has test beds and contract growers at eight sites in the United States (including Pennsylvania and Maryland, and as far west as California), one in Ontario, and others in France, Italy, England, Holland, Denmark, Luxembourg and Germany. If you ask him if you might come and see his roses at his home in Silver Spring, he'll plead poverty in the plants and send you to display gardens maintaining beds of his roses at The National Arboretum, Hershey Rose Gardens and The Conard-Pyle Co. in West Grove, Pa., which is also the sole distributor to retailers of Williams's Mini-Flora in the United States. Should you visit any of these gardens, why not test your rose expertise. Before you read any of the labels, see if you can tell which plants are the Mini-Flora.

Amalie Adler Ascher, a garden columnist for the *Baltimore Sun*, which distributes her column to other newspapers through its News Service, is a frequent contributor to *Green Scene*. She has recently been appointed a regular columnist for *Nursery Business*, a trade magazine.

Horticultural Therapy Offers Tools And Techniques To Make Gardening Easier

 by Martha Straus

When I was working in Virginia setting up a group garden for older people, I met Mary. A woman in her early 80s, Mary had recently moved from Nebraska, where she had lived all her life. When she came to the garden, her arthritis made it difficult for her to walk, but she was determined to garden. Her enthusiasm and vitality was apparent to everyone, and by the end of the first season, she had so many tomatoes, peppers, lettuce and beans that she gave away what she couldn't eat or freeze. The most valuable tool she used that summer was an extra long-handled wooden hoe, which also provided walking support for her.

Here at Friends Hospital* we have been collecting and using enabling tools to help our patients continue to garden despite personal difficulty. On any given day, 80 people may show up in any of the eight horticultural therapy areas at the hospital. We provide a well-rounded horticultural experience, which includes a cutting garden, another for flowers for fall arrangements, gardens for vegetables, herbs, perennials, and for physically handicapped persons, raised beds and wheel-chair accessible areas.

Three points to keep in mind when considering gardening tools: their weight, the length of the handle, and the special function the tool fulfills for the gardener. The lighter the tool, the less stress on arms, shoulders, and backs. Aluminum garden tools are especially light and easily rinsed clean.

Handle length depends on whether or not you prefer to stand or sit while you garden. Long-handled tools (50 in. or longer) allow gardeners to work from an upright and more comfortable position, thus reducing strain on the lower back and increasing time spent in the garden. Long

handles can also extend working areas for seated gardeners.

Some excellent long-handled tools are available. A set sold by W. Atlee Burpee includes a 63-in. long lightweight aluminum handle painted yellow. The yellow acrylic coating makes the handle easy to see and comfortable to hold. Six snap-on heads are designed to take the strain off heavy jobs by placing the weight in the tool, not the handle.

The seed "head" drops a variety of seeds at preset intervals of one to four inches. No more stooping and bending to sow seeds. Other heads include a weeding hoe that cuts roots below soil level with no "hoeing" required, a crumbler to help prepare the soil, a cultivator, and a combination cultivator/weeder.

Gardener's Supply recommends "the finest hoe in the world." The long-handled swan neck hoe has a sharp half-moon shaped blade, which reduces resistance and cuts weeds below the surface. The 60-in. handle allows use from an upright position. Gardener's Supply also offers a standup rolling seeder with four adjustable seeding discs on a 46-in. handle.

Another long-handled tool we have found quite handy is a long reach cut-n-hold fruit picker and pruner made by Baronet. This all-aluminum tool is 59 in. long and weighs only 30 ounces. The trigger action handle allows fruit or cuttings to be taken and held until it can be safely lowered to the ground. The picker is valuable for seated gardeners as well as for those who have difficulty reaching, stooping, or bending. A shorter 24-in. model exists and is excellent for those working raised beds. This tool will allow a single-handed gardener to prune, propagate, or pick fruit.

Some gardeners may find that short-handled tools better meet their needs. Short handles can provide leverage and practicality for wheelchair-bound or seat-

ed gardeners. Many fine varieties of children's tools exist that fill this function. Look for well-made, scaled down models of adult tools. Gardener's Supply offers a set with a shovel, swan-neck hoe, garden rake, and leaf rake — all with 44-in. long handles. Burpee's also offers a similar set that includes a rake, hoe, fork and spade. Burpee's tools as well as a set offered by Smith and Hawken have T-handles that allow for a secure two-handled grip. A nice set of a long-handled trowel and fork available from Smith and Hawken weighs only one pound and is 24 in. long. Their yellow tubular handles have thick rubber grips especially good for weak or arthritic hands.

Handles may also be built up to aid those with weak grip. Foam rubber pipe installation from hardware stores or self-adhering foam from medical supply stores may be glued or taped to existing handles to build them up for easier holding.

Marco Products exclusively offers two back preserver tools, auxiliary handles which attach to your existing tools. One single handle attaches to a shovel, spade, pitchfork, or snowshovel, and reduces energy and effort. A double-handle variety is useful with garden hoes and rakes. These handles allow gardening from an upright position and also aid weak grips and arms.

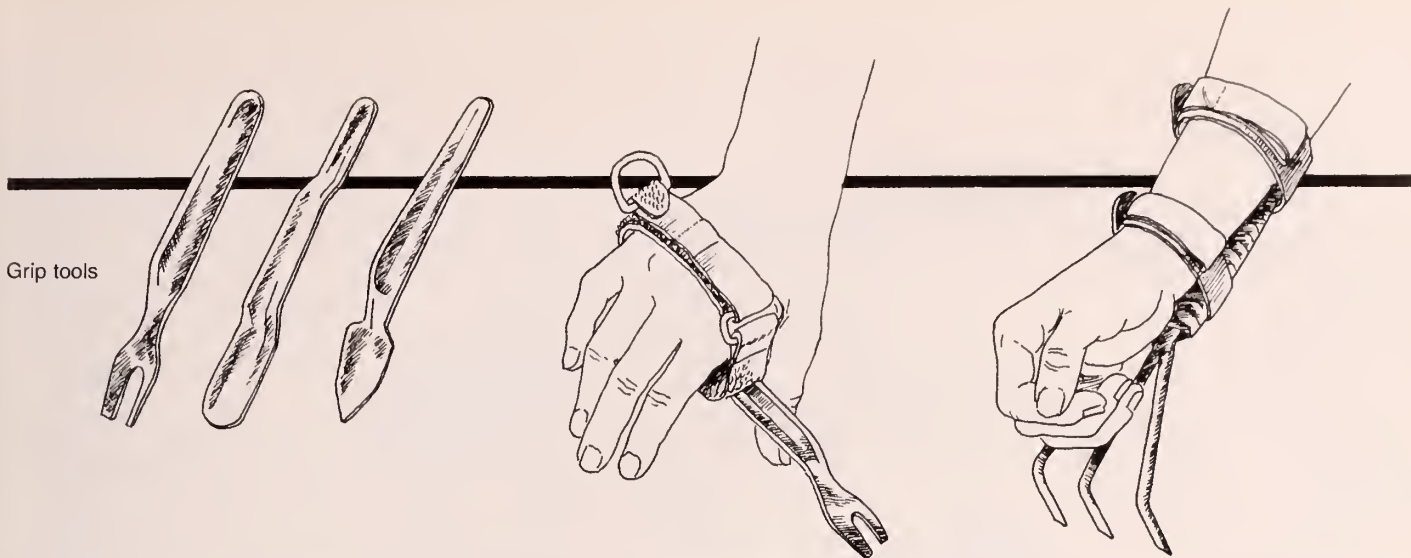
For those with little or no grip, a universal cuff may be useful. This buckles to the hand with velcro, and simple lightweight tools may be attached. The gardener may need a rehabilitation specialist to fit the cuff.

A variety of special enabling gardening tools exist. Included in this list is a favorite of mine — the "easy kneeler." Available from most gardeners' catalogs, the enameled steel tubular frame offers handles to lower or raise a gardener from the wooden platform covered with a foam cushion. The kneeler may be turned over and used as a bench. It weighs less than 10 pounds,

continued

*Friends Hospital, a Quaker-affiliated private psychiatric hospital in Northeast Philadelphia

Grip tools



The versatile Easy Kneeler is used as a bench for sitting to work at raised beds or inverted for kneeling. The handles help support a person raising or lowering themselves from the ground or from a seated position.

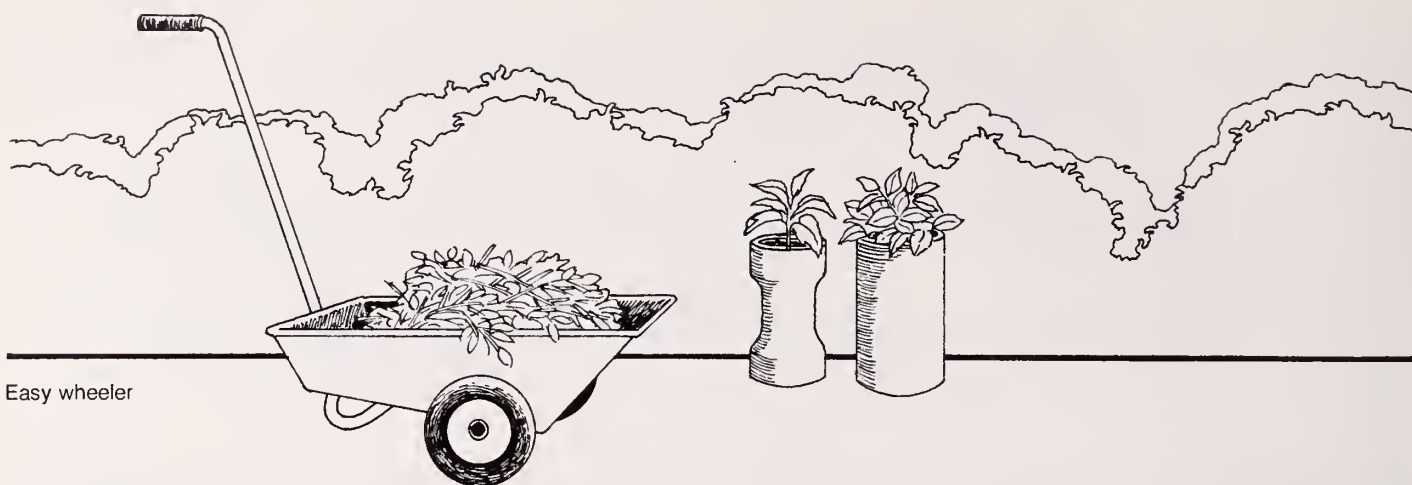
Jack works his garden with the long-handled tool set from Burpee. The light-weight handle reduces stress on back and arms. In the foreground are some of the interchangeable snap-on heads.



Thelma (left) uses the Baronet pruner to trim the tree while Florence (seated) edges the garden with a child's T-handed edger. Vera is watering with the Gardena cassette watering hose.



Thelma and Vera work the raised bed with a light-weight, thick-handled child's tool from Smith and Hawkins.



Easy wheeler

and the two-foot high sides fold flat for storage.

Kneeling pads made of high-density foam prevent wet knees and aching joints. Old carpet pieces or remnants are also useful as kneeling pads. Knee pads that hook around your knees and go where you go reduce stress on knees and legs.

Gardener's Supply also offers a garden scoot weighing 28 pounds and measuring 19 in. high with a swivel seat. You can sit while you pick or weed and move along the rows on the wide rubber tires.

Well designed hand tools aid those working in smaller, tight areas. The swan-neck hand weeder allows delicate hand weeding with its precise 4-in. wide steel blade. The 18 in. length is noteworthy for raised beds.

The trigger grip tool set offered by Smith and Hawken are lightweight aluminum alloy. The trigger or hook under the handle helps those with weak grips by offering greater support.

The "easy wheeler" has a galvanized steel bed with a single handle for its 12-pound size. The maneuverable little cart offers stability and support for unsteady walkers. It has even been attached to wheelchairs and taken right out to the garden.

Finally, after your garden is planted, it needs water. Hoses are often heavy and frustrating to drag around. Gardena offers two types of cassette watering hoses. Each reach up to 50 feet, one with a flat hose and a newer cassette with a standard one-half inch hose. Both have easy rewind reels and carrying handles. The Gardena System is modular; a variety of attachments include several nozzles, sprinklers, and even a fertilizer dispenser.

Accessibility is the key to the enjoyment of a garden for the less able gardener. Raised beds and vertical planting reduces bending and lifting that often hamper gar-

deners. Raised beds can be constructed from many different materials. Some that are frequently used are railroad ties, stone, concrete, brick, and pressure-treated lumber. Some "ready-to-use" raised beds include whiskey barrels cut in half, flue tiles, and stacked or cut tires. When selecting containers for gardening, consider their durability, stability, size, cost, and adaptability. The ideal height for a bed for seated or wheelchair gardeners is two feet; the width can also be two feet if the bed is to be worked from one side only, or increased to four feet if you will be working from both sides. For those who are unsteady but ambulatory, a height of 12 in. to 18 in. gives added support and allows the gardener to lean and work at a more comfortable height.

Vertical or pyramid gardens are another form of raised beds that help reduce bending. Burpee's patio tower garden provides 46 feet of growing room on a 4-ft. tower with a 2-ft. square base. A variety of plants, flowers, herbs, and even strawberries can be grown in this type of container. They are also excellent for patio or rooftop gardens.

Grow bags offered by Gardener's Supply contain sterilized potting soil within a 15 in. x 4 in. double polyethylene bag. Just place the bag on a table or bench, and you're ready to plant. Plant roots stay warm and moist and no weeding is required.

For the vegetable gardener, stake everything and grow pole varieties. Peas, beans, melons, cucumbers, squash and tomatoes can all be staked, or an A-frame trellis used. This saves space and makes harvesting easier.

By easing the stress and strain of gardening, here at Friends Hospital we reduce the resistance of our patients who feel they are no longer able to garden. At the same time, they become more independent, self-reliant and regain their self-esteem. This

independent functioning is hopefully continued after discharge.

Gardener's Supply offers a tool search service for those who have something special in mind.

These enabling tools and techniques are designed not just for the handicapped or physically disabled, but can make every gardener's life just a little bit easier. Couldn't we all use a break now and then?

Supply Sources

W. Atlee Burpee Company
Warminster, PA 18974

Clappers
1125 Washington Street
West Newton, MA 02165

Gardener's Supply Company
133 Elm Street
Winooski, VT 05404

E. C. Geiger
Box 285
Harleysville, PA 19438

Marco Products
1370 Delfino Way
Menlo Park, CA 94025

Smith and Hawken
25 Corte Madera
Mill Valley, CA 94941

For additional information, contact:

Martha C. Straus
Friends Hospital
Roosevelt Boulevard & Adams Avenue
Philadelphia, PA 19124

or
NCTRH
The National Council for Therapy and
Rehabilitation through Horticulture
9220 Wrightman Road, Suite 300
Gaithersburg, MD 20879

Martha Straus is supervising director of Horticulture Therapy at Friends Hospital. This article was the outgrowth of the Friends Hospital exhibit at the 1986 Harvest Show. She is secretary of the National Council for Therapy and Rehabilitation through Horticulture.

GARDENING with CRUTCHES



by Peter Loewer

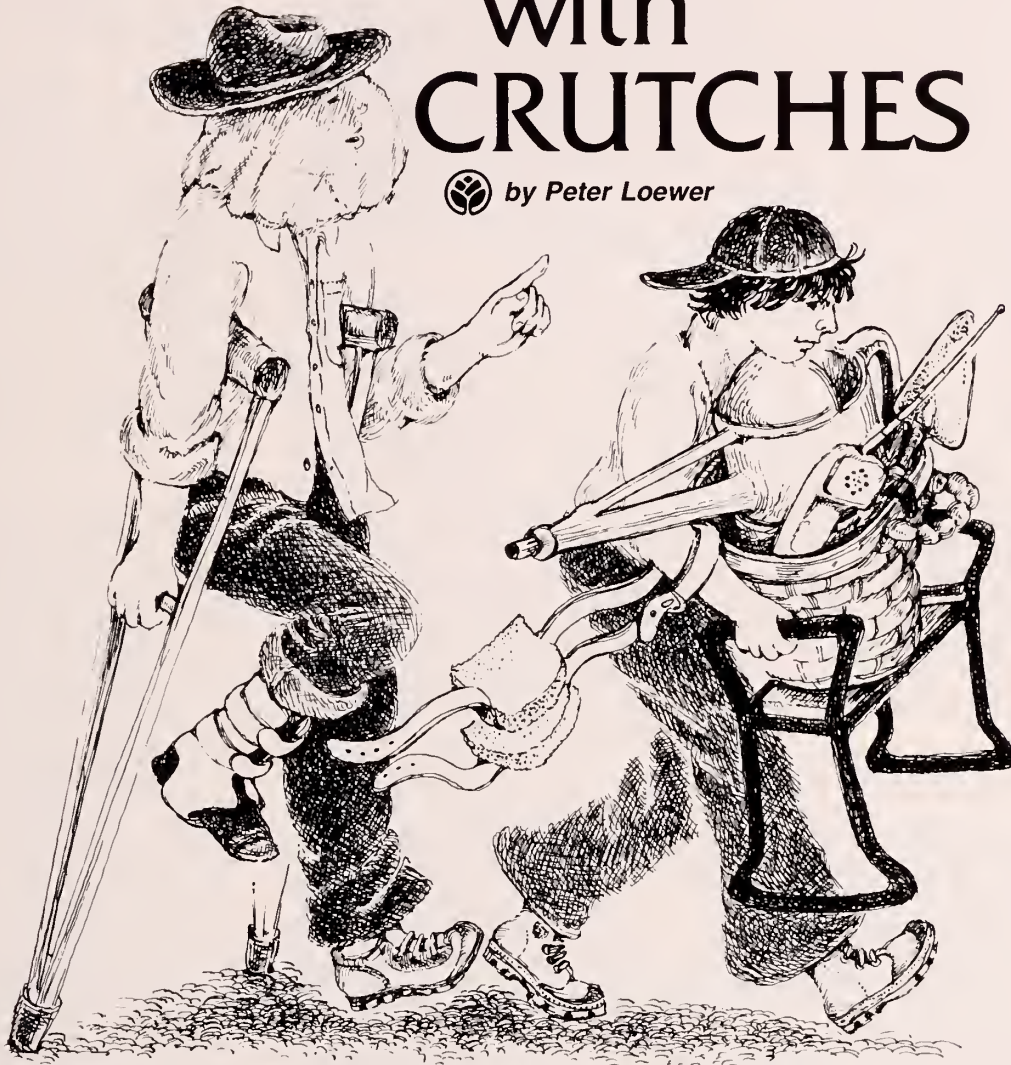


illustration by Jean Jenkins

I leashed our dog Bismarck, picked up my trowel and a plastic bag, and set out on a double mission: to walk the dog and to rescue an unusual grass along a lane behind our property that would soon be mowed down by a construction team.

We had reached the lane, when Bismarck (a German shorthair pointer of obvious grace but still mastering a basic code of conduct) spied or scented a woodchuck hole. He took off. Unfortunately, I had started the walk wearing rubber garden boots and as Bismarck tugged, my right foot became stuck in a rut. The dog and I moved quickly to the left but my foot stayed to the right.

I sat there, entirely askew, my right ankle swelling like a hot air balloon with all the

gas jets on. The road was a lonely one; I knew my wife, Jean, would not miss me for at least two hours so with a groan I aimed Bismarck in the right direction and proceeded home.

That night Jean drove me to the local medical center where my injury was diagnosed as a fractured tibia complicated by torn ligaments. I was fitted with an aircast and told that my leg would, if all went well, take six weeks to heal.

For the next two days — under orders from the doctor not to move my foot — I quietly sat and watched TV then hobbled upstairs at night to my bed of pain. I had started to read my backlog of garden books, but soon I was so immersed in misery over my unhappy lot that the thought of

continued

reading one more line devoted to double-digging or propagating anything brought on a fit of depression.

getting into the garden

Two weeks later after a visit to the doctor who informed me that everything was going well, it was time to venture out to the garden. (I had hobbled around outside on crutches a few times before but became so sad that I quickly maneuvered myself back in.)

The time was 1:00 p.m. My preparation: first I adjusted the cast, then went to find (or to be more accurate asked Jean to find) a misplaced set of running shoes that would fit around the cast. Next I got a piece of towel (or rather asked Jean to get the piece of towel) to wrap around the part of the crutches that unhappily rested under my armpits. I tied up the dog (or Jean tied up the dog) so he wouldn't knock me down again. Now I collected the bug lotion and my hat with the veil, a necessary accessory since the black fly invasion had started the day before and was the worst outbreak in years. Then it was tool roundup time.

"Well, I'll need my good trowel, you know the one with the long handle. And that old pail . . ."

"What old pail," asked Jean.

"I think it's down in the basement near the hot water heater."

"OK," she said.

"Then," I continued, "some labels, and a fresh marking pen — they're out in the greenhouse — and my rubber knee pads, and that big woven basket to put the weeds in — I think it's out in the garage behind the cart and the lawn mower — and those seeds on the bench in the sunporch."

"All 125 packets," she asked with an edge to her voice.

"I'll just sort them out tonight. For now forget the seeds but I just remembered, I will need the rose for the watering can."

It's a strange thing but many objects in life multiply without any help from us: wire coat hangers, weeds, Japanese beetles and woodchuck holes. But chief among those items that will not increase on their own are both money and roses for watering cans. It took 10 minutes to find that brass rose.

Obviously the disabled gardener cannot move a tree or dig an oversized hole, haul brush or truck wood from a cut-down tree, run to turn on the water, run to turn off the water, dash to the garage for another tool or a marking pen that really works. So plan-

ning was truly necessary.

Finally, we ventured out. Jean carried everything to the backyard — it took two trips — next to the bulb bed. I followed on crutches.

"Where do you want to start?" she asked.

"I guess I'll move that 'Cecile Brunner' rose that's so unhappy where it is."

She arranged my supplies around me.

"Do you have everything you need? If I don't get started cutting this lawn, we will be greened over by next week."

"There is one more thing."

"What?"

"My Croakies. That elastic band that fits on my glasses so they don't slip down my nose. They're in the downstairs bathroom next to the poison ivy lotion."

Jean returned with the Croakies.

"If there is anything else that you need, tell me now. I won't hear you with the lawn mower running." I couldn't think of anything.

Before she left, Jean came up with a good idea.

"Why don't you use the reversible seat you bought for that chapter in your last book, the one about gardening when disabled?"

The Corrie Easi-Kneeler consists of a padded cushion that covers a finished wood platform held within a framework of heavy tubular steel, 18 in. high. With the wood close to the earth it acts as a great support allowing the disabled gardener to get to his feet or comfortably kneel at the border's edge, keeping the knees warm and dry. Reversed, the kneeler turns into a comfortable seat for a short rest from gardening chores. This equipment is well made and stands up to a great deal of punishment.

"What else," she asked.

"How about the cordless phone? It's upstairs in my studio." My friend Barry, upon hearing of my injury lent me an extra wireless phone that he had in his office. It's been a boon.

Jean returned with the phone and set it on the table on the terrace. By 2:10 Jean was cutting the lawn, the dog was tied to a large tree near the vegetable garden, and I was set for an afternoon of gardening.

Arriving back at my work station I thought of some of the other things that might be useful to the disabled gardener.

There is the Merrifield Tool Tree. It consists of a pole topped with a grill, so shaped, that it will hold all your tools in plain sight. By putting it in the center of the garden everything would be handy.

Then there is the Garden Scoot, a swiveling tractor seat on wheels. You can actually sit down on the job without bending, stooping, or squatting. The wide rubber tires easily roll through garden dirt.

The phone rang. It was on the patio, 20 feet away.

I used the kneeler to get to my feet, adjusted the crutches, and by the time I got to the phone, it ceased to ring.

The dog started to bark. The United Parcel man arrived with a box of live plants. He stepped around the garage, saw me and put the box by my side.

"Hey, you really have an easy life," he said.

"I know I do," I grimaced.

"Better watch out. It looks like rain," he said and walked back to his truck. I could hear the noise of the mower in the front of the house.

I opened the box and spread the plants out before me. They were to go into the nursery bed, 40 feet away. I had to move.

Ten minutes later when I had relocated, I was suddenly thirsty. The longer I thought about it, the thirstier I got.

"Boy, a cool glass of water," I said aloud, "or a white wine spritzer with plenty of ice."

Suddenly there was no need to fantasize about thirst. With a tumultuous roar, a storm cloud broke over the house. The rains came; as in Ranchipur, the rains came.

Jean housed the mower, helped me to move all the equipment and brought in the dog. It rained for three days.

After a month, my ankle was really on the mend. I'm working in the garden again. I've turned in my crutches and have continued to be the old curmudgeon I've always been, with one difference. I'm aware of how lucky I am to have the wife I do.

Supply sources:

Easi-Kneeler and Merrifield Tool Tree

Walt Nicke
Box 667G
Hudson, NY 12534

Garden Scoot

Alsto
P.O. Box 1267
Galesburg, IL 61401

Peter Loewer is a frequent contributor to *Green Scene*. He is the author of several books, his most recent, *Gardens by Design*, published last year by Rodale Press. He is currently working on *The Annual Garden* to be published by Rodale Press.

SWEET BAY

 by Linda Yang

It's a normal city morning, and the sun has yet to top the 30 story brick monster that obscures my houseplants' view of sky. I ignore the whiteflies fluttering among the leaves, and photosynthesis tenets being tested by layers of city grime. This is the time to confront the guilt that overcomes those who cannot be compulsive about their houseplants.

Now except for greens of molded plastic, there's no species that tolerates *no* care. Yet for over a decade my sweet bay, *Laurus nobilis*, has distinguished itself by its utter disregard of some truly shocking abuse. Clearly this is a selection for busy folk yearning for an unusual plant that's handsome, versatile and useful too (not to mention a viable alternative to the ubiquitous *Ficus benjamina*, which it somewhat resembles).

Let's begin with handsome. Sweet bay has impressively luxuriant, oblong leaves ranging in size from an inch or so up to about 3½ inches. Older foliage is dark green, smooth and stiff, with occasionally rippled margins, in splendid contrast to its new growth that tends towards chartreuse and is softly pliant, seemingly fragile. Its sleek stems range in tone from olive to auburn. And while my bay now stands a shrubby 5 ft. + tall, in its native Mediterranean habitat, bay trees and shrubs stretch to 40 ft. and more.

Sweet bay bears clusters of tiny yellow-green spring flowers, usually with sexes on separate plants, as well as shining black berries. But no flowers or fruit have been seen around here, a result, in part no doubt, of my meager allotment of light.



Sweet bay topiary summering at Wave Hill in the Bronx in New York.

For although this adaptable species does prefer at least a half day of sun, here its winter maximum is maybe two hours, with not impressively more the rest of the year. Its infertility is surely encouraged further by a spare diet: a monthly solution of diluted fish emulsion – when I remember – and a twice yearly fertilizer treat of a balanced 20-20-20. Increased applications of a high phosphorous fertilizer might well inspire bloom, but would also reduce the flavor its foliage imparts to soups, stews and roasts,

which is, after all, a major role for sweet bay, whose aromatic fresh leaves bear little resemblance to the pale corpses in bottles on supermarket shelves. (Bay leaves are best kept whole, by the way, and left in the cook's cauldron; not easily chewed or swallowed, they can catch in the throat and cause choking.)

Remarkably free of maintenance problems, a potted sweet bay does best in rich, peaty, barely moist soil, with sufficient perlite or sand to ensure good drainage.

continued

Should you forget to water, your negligence is quickly forgiven; only leaf margins brown and die. The plant is less sanguine though, if repeatedly overwatered.

A sweet bay houseplant may take some time to get potbound, and it also won't mind staying that way a while. When you do repot it, if you want to keep it going in the same container, simply slide it out, trim the roots all round, add fresh soil and slide it back. Compensate for the root loss by trimming several top stems. Since propagation is best done with cuttings, save and recycle any softwood slips that are 3 or 4 inches long.

An occasional upside-down dunk in a soapy water solution keeps the foliage gleaming. It also controls scale, the only insects that seem to notice it, and eliminates their tell-tale sticky secretions. Once, in a fit of impatience, I attacked a minor scale invasion with malathion – and watched all the leaves drop the next day. The tough plant survived, and I learned a lesson. Sweet bay is, after all, a culinary herb, so it's saner in any case to use a product like Safer's insecticidal soap, which will

eventually eliminate the scale if applied regularly every few days for several weeks.

Where winters are mild, sweet bay is a striking ornamental evergreen that tolerates shearing into functional forms like hedges. It can also be sculpted into a whimsical tubbed topiary. One superb example is the venerable 6-ft. tall lollipop in the Bronx created by Marco Polo Stufano that stands sentry to Wave Hill's summer herb garden. To achieve a similar profile, remove all but one stem, cut the growing tip when it reaches the height desired, then encourage multiple branching by pinching back new side shoots. Rotate the container a quarter circle every few weeks to inspire even growth.

In autumn, in a climate like New York's or Philadelphia's, where temperatures dive towards freezing, a sweet bay summering outdoors must be brought back in.

Too often, unfortunately, sweet bay is simply called "laurel." It is indeed one of two species in the genus *Laurus* within the laurel family, Lauraceae. But this inauspicious appellation naturally leads to confusion with such toxic genera as mountain

laurel (*Kalmia latifolia*), cherry laurel (*Prunus laurocerasus*), and California laurel (*Umbellularia californica*). Compounding the hazard are casual references to another laurel grown in California (*L. canariensis*), which is sweet bay's benign sibling and the only other species in the genus. A native of the Canary Islands and Madeira, it is less hardy and has leaves that grow longer and somewhat broader than *L. nobilis*.

But the true Mediterranean bay, *Laurus nobilis*, is the patrician berried laurel whose flexible stems crowned ancient Rome's heroes, poets and physicians. It seems that one man's baccalaureate (berried laurel) is just another's carefree houseplant.

Since she's free to ignore her sweet bay, Linda Yang has time to tend the many other herbs she grows at her city site. She is a garden writer with the Home Section of *The New York Times* and is working on her second book on city gardening. Her first was *The Terrace Gardener's Handbook: Raising Plants on a Balcony, Terrace, Rooftop, Penthouse or Patio*, Doubleday, Garden City, New York, 1975; reissued in paperback by Timber Press, Portland, Oregon, 1982.

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Ruth Flounder's winning vinegars
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See page 4.

GREEN SCENE

THE MAGAZINE OF THE PENNSYLVANIA HORTICULTURAL SOCIETY • NOVEMBER/DECEMBER 1987 \$1.50





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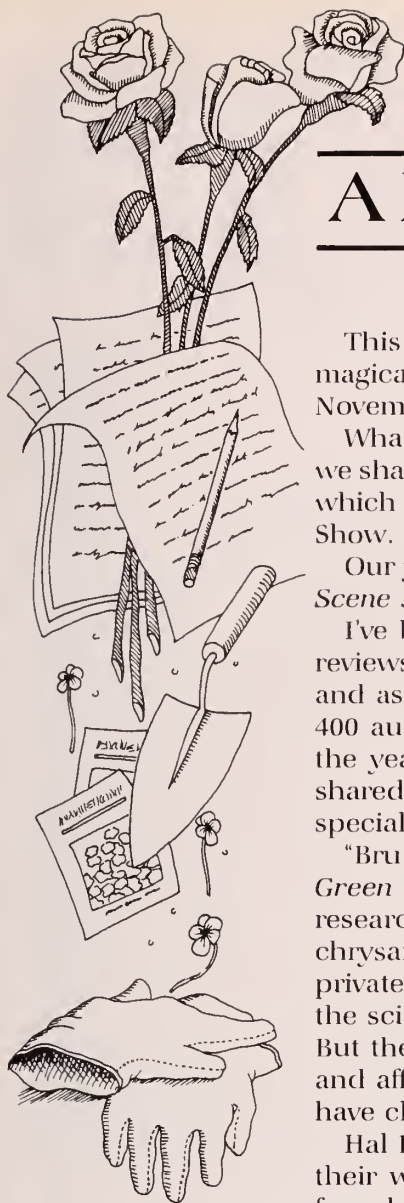
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A Fair and Bright Remembering

 by Jean Byrne

This is Barbara Bruno's fifth cover story for *Green Scene*. Barbara is not only a magical gardener, she's a whiz with both the camera and artist's tools. (See covers for November 1979, March and November 1980, November 1983.)

What's wonderful about gardening and writing is the cross-generational wisdom we share. In this issue Henry Lee, a retired physician, discusses his xerophytes, some of which were included in an award winning botanical Collection at last year's Flower Show.

Our youngest horticulturist is John Cozza, gardener for Eden Restaurant (see *Green Scene* July '87), who tells us how to landscape containers in the city.

I've been deeply aware of how much our authors share with us as I assigned the reviews of five books written by *Green Scene* authors included here on pages 18 - 24, and as I prepared for the authors' alumni event held in October. We wrote to about 400 authors. I enjoyed seeing the substantial list of writers we've worked with over the years and at the same time was saddened that some people with whom we've shared so much have moved so far away, and that in just the last three months three special authors have died: M. M. Brubaker, Hal Bruce and Paul Wolfinger.

"Bru," as we affectionately called him, was on the first Publications Committee when *Green Scene* was just an idea. By then he had retired from Du Pont as director of research; he was devoting himself to his four greenhouses filled with orchids and chrysanthemums as well as his lovely trees and shrubs, which almost constituted a private arboretum in Chadds Ford. At first I found him intimidating because he had the scientist's curiosity and skepticism as well as the capacity for challenging beliefs. But these qualities were so consistently put at our service, and with so much humor and affection, that we all learned from his iconoclastic perspective. I wish we could have cloned him.

Hal Bruce was both a premier gardener and writer. He taught many horticulturists their writing craft at the University of Delaware, and we at *Green Scene* benefitted from his skills both as an author and teacher. So great a writer as the late Katharine S. White, author of *Onward and Upward in the Garden* and fiction editor and writer for *New Yorker*, paid Hal homage when his book, *The Gardens of Winterthur in all Seasons* (Viking) came out in 1968. White pronounced it the most beautiful and readable of all garden books that year. She wrote: "If you can't get to Winterthur, Harold Bruce's book and the Hampfler photographs will make you feel you have been there. His prose is far removed from the turgid writing of most horticultural scientists... He hasn't attempted to write a botanical handbook, and, as a taxonomist he has had the courage to change the rules of the gobbledygook of current Latin." Bruce also gave practical advice for home gardeners in the book, and White claimed, "I'll have learned a lot about the small home garden from Harold Bruce, and I am especially grateful for his notes on hardiness, for I have been nursing along plants that will never flourish in our own Zone."

Paul Wolfinger was a Philadelphia Green staff member. An exuberant gardener, he left a desk job to come and work for PHS because he wanted to be outside and to have his hands in the soil. He left PHS shortly before he died for the same reason: he was too good at administration and had left the soil behind. He wanted to dig again, and he was kind enough to share garden tips with *Green Scene* readers a couple of times. Paul would garden anywhere, anytime: he'd shatter concrete for flowers or hop into his truck and tootle down to West Virginia to help a retired staffer plant; or he'd help restore a friend's vandalized garden in the pouring rain.

If there are any better people, more loving and sharing than gardeners and writers. I don't know who they are. Do you?

Jean Byrne, Editor



The \$7.98 (Plus Tax) Suntrap



by Barbara Bruno

Shoestring solar gardening: great idea – or icy fiasco?

The gambling gardener's lot on the eve of a winter vacation is an uneasy one. Galvanized by weathermen's warnings, I hedged my bet with a hasty defense. Next summer's beanpoles became a lean-to frame along the windowed, south flank of an old farm building. On top, I stapled bargain store plastic sheeting. In an unfinished and all too experimental solar room inside the structure, potted plants would remain untended with heat-conserving night window coverings side-lined until my return. I hoped the airtight suntrap would elevate the building's resistance to wind chill factor, as well as bolster my peace of mind.

The icy catastrophe never materialized. The weather stayed mild, but the makeshift buffer succeeded in other unexpected ways. On the first sunny afternoon home, I discovered that propping open the only hinged window along the building's bank of fixed sashes nudged the interior temperature upwards by modest but important degrees. A couple of cement building blocks for steps, and the window fast became a door, and each clambering access into the cramped, but summery space, a test of agility.

Outside the window an imprisoned flower border warmed, awoke, and bloomed with endearing precociousness. Daffodils dazzled in snow-reflected light.

Fragrance of damp earth, essence of violet and periwinkle mingled in balmy congeniality. Barn cats blissfully lolled there as beached vacationers. I marvelled at surrogate spring: robust and joyfully vital beneath the fragile shelter of bargain store plastic.

The suntrap snared more than sunbeams. Next season's possibilities rose, like bubbles in the headiest champagne, to impede my return to work in the studio. Routinely, I was sidetracked by temptations to revive this or that wan jasmine or peaked primrose with an afternoon's bask in the suntrap. There were the thermometers – a soil variety and the assorted baker's dozen conventional instruments –

to check, inviting absorbing comparisons morning, noon, and night.

Days lengthened. More and more potted plants were balanced through the open window. Pans of pale lettuce, flats of seedlings arrived and retreated, synchronized with the arrival and departures of polar fronts. Meanwhile, with the assist of BTUs generated undercover outside the window, the incomplete interior skimmed through the winter on the chilly side, but with only two brief dips below freezing during week-long episodes of arctic incursions. When spring light forsook window-sills, usually causing seedlings to sprint upwards, the sun-drenched way station made it easy to keep crops of tender garden transplants stocky and developing.

Summer approached. The overheating enclosure's usefulness declined, and it was dismantled, except for one shaded section retained for midsummer seed starting. Even with the beanpoles back in the garden, the suntrap stayed vividly with me as more than a pleasant memory. The structure with its many uses and rewards was too nifty — and thrifty — an idea to abandon.

I kept the basic form for the suntrap's second season. There have been notable refinements, and I'm thinking hard about others. The most needed and appreciated improvement was a door replacing window access into the suntrap. For smoother covering, milled lumber has replaced the end poles and the center pole where plastic sheets join. I might have replaced all beanpoles for a less rustic appearance, but more headroom would be nice; I'm still undecided about a basic structural change that may come next year. A homemade window hinged onto a simple frame at one end will make spring ventilation easier. I'll wait to cut through the outside covering, freeing the window only when coldest weather has passed.

collecting heat

I've experimented with ways to best collect and retain heat in the suntrap. Tar paper tacked loosely to the building's outer, windowless wall space significantly increased heat gathering potential. A hand placed against the paper on a sunny afternoon discovers that a matte black surface absorbs far more of the sun's radiant heat

than do lighter, more reflective surfaces. The paper can be easily removed when spring sun intensifies. Slate flagging makes a fine walkway, and it has greater heat collecting and holding capacity than loose soil. Bricks or cement work almost as well. Insulating the interior soil mass keeps heat absorbed during the day from seeping away into nearby frozen soil. I buried 18 in. by 30 in. by 1 in. styrofoam panels short end to end around the suntrap's perimeter to accomplish this. It was a bit of work but well worth the effort, elevating the temperature measurably on cold nights.

The main purpose of the enclosure remains protecting and heating the interior sunspace. Plants and their shadows reduce the amount of heat collected. I remind myself of this often as I try to curb my enthusiasm for gardening activities in the suntrap during the coldest months.

In any case, wide temperature fluctuations make winter gardening in the lean-to a challenge. I keep daytime readings from skyrocketing by venting excess heat into the interior where it's needed. More windows that open into the building allow speedier, hence greater, cooling. Separate floor and ceiling height window openings create more efficient circulation patterns than do single large ones. Cold is somewhat tempered by the building's flank and the soil mass beneath, but occasionally night air temperatures may approach outside readings after several bitter, cloudy days. The soil, if insulated from surrounding ground, will probably not freeze at all in the average winter.

plants that thrive

Overwintering near hardy plants seems a natural function for a suntrap. Moderating temperature is essential if the space is to be used that way. Too much heat is the villain here. Soft, new growth makes a plant more susceptible to frost damage during inevitable night temperature dips that will occur in unheated quarters. Careful monitoring is the key to maintaining plant dormancy.

Half hardy house plants grown too large for window culture could rest here, their pots buried and mulched against soil freeze. The cook's delight, the herbalist's problem child, come to mind; rosemary,

given time and the most rudimentary attention, inevitably reaches the size of a small pony. Other herbs of sun drenched isles, sweet marjoram, dittany of Crete, and similar plants that languish in a winter landscape without some slight protection are also candidates. For culinary interest, I'll try artichoke, of the frost sensitive root, and maybe a carefully espaliered fig someday. Azalea fanciers might arrange a home under a lean-to for showy but slightly tender varieties sometimes spoiled by vagaries of weather. I imagine *Daphne odora*, another small, choice shrub that is temperamental at best in my garden, inundating the suntrap with rich perfume. A menagerie of damp sensitive alpine treasures would no doubt flourish here if provided with lots of fresh air.

Early blooming garden familiars perform with added panache when coddled in the suntrap's microclimate. Indulging my penchant for the fragrant heirloom, I find that old-fashioned primroses, sweet violets, scented violas, and some few and wonderful varieties of pansies endowed with lavish perfume, bloom earlier and longer in the mellow atmosphere. Their fragrance and sweet charm can be better enjoyed in cozy, undercover intimacy before showier garden wonders vie for attention. Transplanted wallflowers, sown in the June garden, and stock from a summer sowing could be reasonably expected to sweetly perfume the precocious springtime in the suntrap.

Such a protected spot is an ideal place to store pans of seeds needing a period of cold to break dormancy. I've had best success with difficult and tardy primroses and will try *Helleborus* here. The primroses of choice for suntrap culture are the *P. acaulis* and 'Juliana' hybrid group. Blooming before Christmas, some are still in full flower three months later as I write.

winter herbs and vegetables

Another tempting project is to grow winter herbs and vegetables. Parsley from a July sowing grew slowly, but with a vigor unparalleled by any spring seedling, a testament to its Mediterranean past where mild winter is for growing. In summer I save some bulbils produced at stem ends by Egyptian top onion, a perennial "walking" form of the kitchen familiar. Stored in a dry,

The \$7.98 (Plus Tax) Suntrap



cool spot, they can be potted at will for a succession of winter scallions. I plan to try a late summer planting of vegetables in a specially prepared building-side bed. I'd protect the plants from light frosts with temporary night coverings. To minimize problems with ventilation, I'd enclose them only when cold weather finally settled in.

Much pleasure and profit awaits the suntrap gardener who cares to experiment with small crops of winter sown vegetables. Although growth is slow and precious little will reach the table in proximity to the drear of winter solstice, I find it inexplicably heartening to witness bits of tender green slowly but determinedly unfolding in the face of icy mayhem playing just beyond the plastic partition.

Lettuce is a natural for this audacious defiance of Mother Nature, since many wonderful varieties are easily available and bred for such a purpose. I've had impressive success with the fast and hardy greenhouse variety, 'Magnet.' 'Winter Marvel' and copper tinged and antique 'Brun d'Hiver' are dependable types with enough grit to winter over in the open garden. Lettuce

started tardily inside on December 6th grew slowly then faster as days lengthened noticeably, until harvested in March. I arrived at the same harvest date last year with lettuce sown a month later. I vow to get my act together for a late October sowing date next year, hoping for mature heads that will hold for harvest as needed during the coldest months.

In spring when small pans of windowsill seedlings balloon, seemingly overnight, into flats of individual pots, what more useful space could there be? My tender seedlings make it through short spring cold spells despite their unheated quarters, with the help of a few heat conserving tricks. Covered buckets of water and cement building blocks set among the plants absorb heat during sunny days to temper the night chill. A double folded plastic sheet laid on top makes a snug nighttime minigreenhouse. The cover also promotes faster growth on cloudy days, but beware of sudden overheating if the sun appears. During sunny cold snaps, I move flats of plants away from wall hugging night positions, allowing sunshine to

recharge that natural heating pad, the brown earth beneath.

building the suntrap

The dimensions of my suntrap were dictated by the plastic sheets at hand and the length and height of the sash I wished to protect. I used 9-ft. poles, the tallest possible with the 10 ft. by 25 ft. limitations of inexpensive four mil plastic rolls used for the lean-to. This left dangerously short selvages for securing top and bottom, but it has worked here in a relatively windless site. You can easily figure the length of pole needed beforehand. On graph paper or a measured one inch grid, lay out the height and width of the suntrap you want, to one-half inch equals one foot scale. Join the two dimensions with a slanted line, representing the pole. Measure it to find the pole's length. You can also start with the pole measurement and adjust the angle to your site. Remember, the more acute the bottom angle where pole and ground meet, the less usable space inside the suntrap.

During the first hurried construction, I

simply wedged the poles between the building and the frozen soil, spacing them about four feet apart. I recommend securing the two end poles, top and bottom, to prevent slippage from wind buffeting. The intervening poles need no such extra attention.

From a stepladder, I draped a plastic sheet along the upper edge of the poles, leaving a loose flap of enough plastic to cover one end with a generous margin to bury or weigh down. I stapled the top edge to the building, starting at the corner but first wrapping the edge around a one inch wide strip of cardboard cut from a corrugated box. This provided a stiff, wind and water resistant top seam that half inch staples easily penetrate. I added more strips as needed and gave the staples a final set with a hammer blow before moving on. (Once the sheet is in place, the top edge is out of reach.)

I had to use two plastic sheets to get the length needed, so starting at the far end, I repeated the procedure with a second sheet, meeting the first over a convenient pole. It's best to join the sheets near

the middle of the structure. This gives minimum unattached widths to be tugged, billowed, and wind pummeled. Working down from the top, match the seams, trimming them if necessary and rolling them together in paperbag-fold-fashion around a strip of cardboard before stapling them along the length of a pole. A beanpole will serve here, but a milled timber gives a uniform seam without weak spots that might work loose in a spring gale. A stronger join is achieved by nailing thin wooden strips over the seam as you work. Do this in one operation. As you progress downward, the upper section will become unreachable.

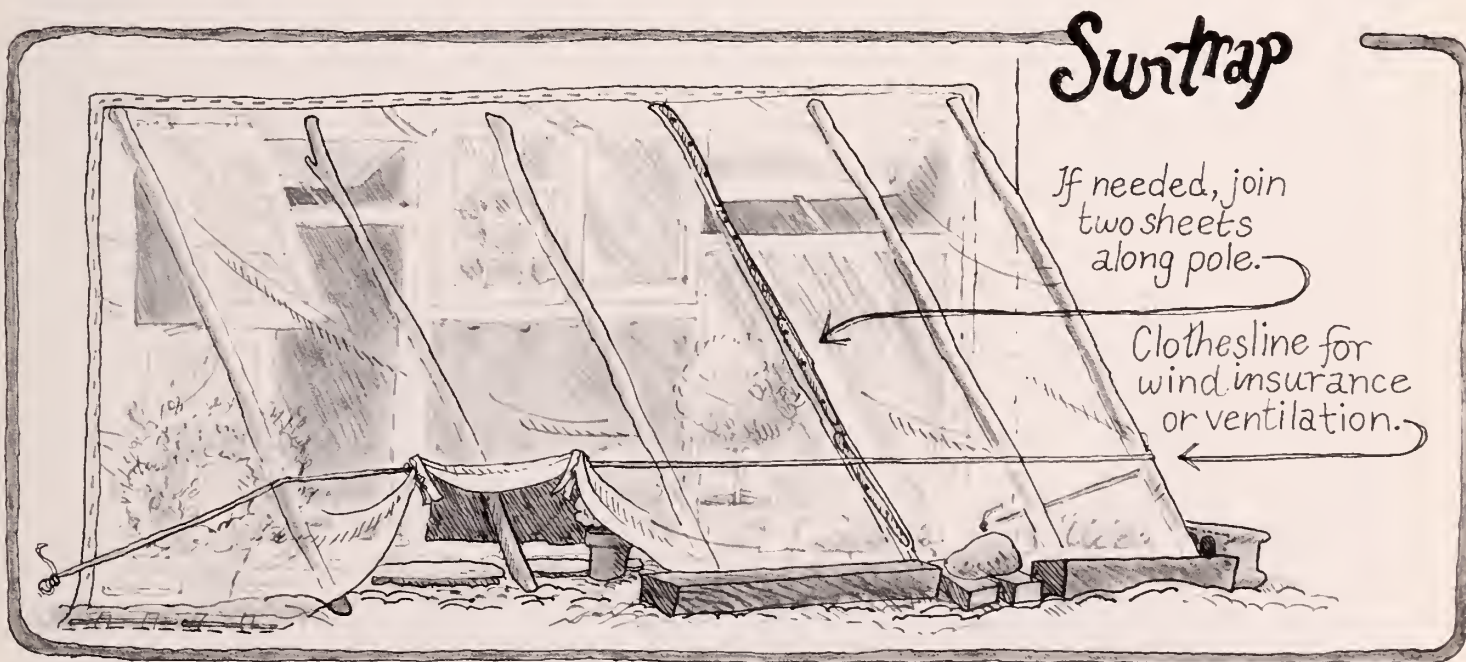
Smooth the plastic all around for a neat, tight fit. Trim away any surplus material where the covering meets the building, leaving enough selvage to wrap around a cardboard strip. Staple the side seam, working from top to bottom, as you did the top seam. Repeat the fitting and stapling along the other end if you have inside access through a window or door. Alternatively, you can partially staple the side seam, for access leaving a movable curtain weighted with bricks, stone, or a heavy

timber. It's not difficult to rig up a small door using a plastic covered wood frame hinged to a simple framing. I'll use this refinement for easily adjustable ventilation this year. Another quick entrance is made by overlapping two sheets and securing them with a row of pinch-type clothespins.

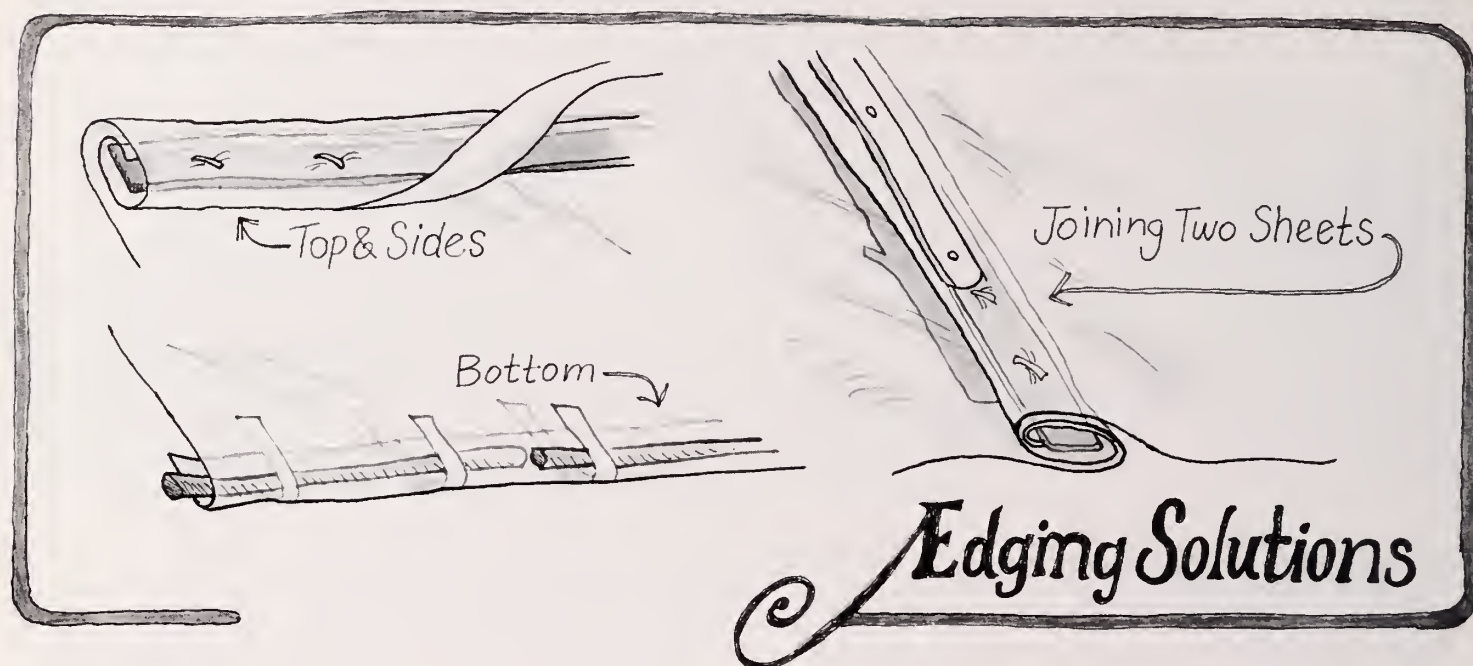
January's frozen soil limited my alternatives for securing the bottom edge of the suntrap. I chose to roll the plastic's edge around lengths of pole, taping the plastic in place. This gave a handy hold on which to weight the perimeter with railroad ties and some handy bricks. Inferior tape that surrendered to cold and the persistent tug of wind gave some trouble later in the season. I used the pole and tape method again this year, but I buried the edge, weighted with bricks, in a shallow trench.

In any case, it is wise to have tape, clothespins, and rope on hand for any necessary quick fixes. Rugged plastic transparent tape sold by greenhouse suppliers sticks and lasts better than cheaper bargain tapes. Pinch-type clothespins come in handy for the daily adjustments of spring ventilation; you can quickly raise the bot-

continued



The \$7.98 (Plus Tax) Suntrap



tom edge a few inches and pin it to a clothesline stretched around the lean-to. Clothesline stretched to corral flapping plastic in spring winds may save the day.

Ideally, the structure should be positioned to face south and encompass an opening into a house, garage, or other outbuilding where excess heat can be vented without the need to open the enclosure to icy blasts. (But don't be discouraged from trying one in any spot you have.) Size isn't critical, but the larger, the better. Ten by twenty-five foot plastic sheets are widely available. Outsized sheets can be had at some hardware, home improvement, and garden centers. By catalog or at the store, Orol Ledden & Sons, Center & Atlantic Aves., Sewell, NJ 08080-0007 (609-468-1000), offers a wide selection of sizes and weights, including long-lasting greenhouse film.

Despite my enthusiasm, the expense and responsibility of a full-fledged greenhouse have always seemed more than I care to take on. If I were thinking of adding such a structure onto my home, a year's delay while I tried out the spot with

a lean-to might help to focus my plans and save expensive and irrevocable mistakes. The temporary and inexpensive nature of this most basic of enclosures encourages experimenting; if one site or form doesn't suit, try another next year – or next week. It allows the novice a taste of undercover gardening on a shoestring before making the leap to a permanent addition. A lean-to seems admirably suited to the gardener who rents, as well as to the specialist temporarily needing additional space. In its most basic form, it can be thrown up in an afternoon. For me, it has opened new gardening horizons and given hours of joy – and all for \$7.98!

Author's Note

I first joined PHS for the enticement of its library and the annual garden visits. Over the years I've derived continuing pleasure, practical information, and aesthetic inspiration from both.

Although I don't know them personally, I've felt a warm kinship with some gardeners as I watched their garden change and mature on repeat visits over the years. The

visit to Anita Kistler's rock garden and alpine house with its lean-to wall may have sparked the desperate idea that became the suntrap. Many thanks to Anita and to all the others who graciously share their gardens with us at PHS.

Sources for Winter Vegetables

Many catalogs offer hardy vegetables. The following are of special interest:

The Cook's Garden
P.O. Box 65
Londonderry, VT 05148
Fascinating lettuce list

Johnny's Selected Seeds
Foss Hill Road
Albion, ME 04910
Frost resistant varieties

Thompson & Morgan
P.O. Box 1308
Jackson, NJ 08527

"Overwintering" types may be suited to suntrap culture.

Stokes Seeds, Inc.
Box 548
Buffalo, NY 14240
Numerous hardy varieties

Barbara Bruno thinks her next project may just be a free-standing winter vegetable lean-to.



Some have flowers bigger than the plant itself if conditions are just right. Ball cactus (*Notocactus crassigibbus*).

The Strange World of **XEROPHYTES:** *Made to Order for the Busy Person*



by Henry F. Lee

Many varieties of small cacti and other desert succulents have a remarkable otherworldly sort of beauty when well grown. Considering their size, their flowers are often astonishing.

Relieved of the stresses of their semi-desert habitats, of the scars and deformities imposed by their searing environments, they are among nature's most marvelous designs.

Of course, it's still true that beauty, whether of form, or of flower or perfection of chemistry, resides in the eyes of the viewer, in the mixers and synthesizers of the brain, in the cortex that interprets.

Many visitors who see my collection of about 300 varieties comment that they never knew, never realized, these plants

could be so perfect or have such flowers.

Then, more often than not, the questions begin and I've come to realize that people seem to sense a strangeness about these plants, a mystery, an occult something that few verbalize. As for myself, I've been observing and wondering about their fundamental differences from all others, both obvious and hidden, for nearly 40 years.

My own questions began with a visit to the Huntington Botanical Gardens in San Marino, California. There I saw a large array of plants of most extraordinary geometric beauty whose brilliant flowers were produced from a seeming paucity of raw materials and water. I wondered whether some of them could possibly be grown at

XEROPHYTES

home in Pennsylvania away from the desert climate. As many others could have told me, they most certainly can. At the beginning there were just the sunny windowsills. Then came large trestle-tables in the cellar under fluorescent lights where dozens of varieties were grown and flowered without every having seen the sun. Finally, much later, came a small inexpensive "plastic" greenhouse.

It has proved to be, both in my busiest years as a physician and in retirement, a near perfect hobby.

Growing desert plants, xerophytes, is not a speedy process. It is not for those in a hurry. Therein lies some virtue. As an avocation it is not too demanding of time or money. It can be as private or as social as you care to make it. If you like challenge, it's there by way of rare and difficult plants. If you wish, it can even produce enough salable material to make it nearly self-supporting.

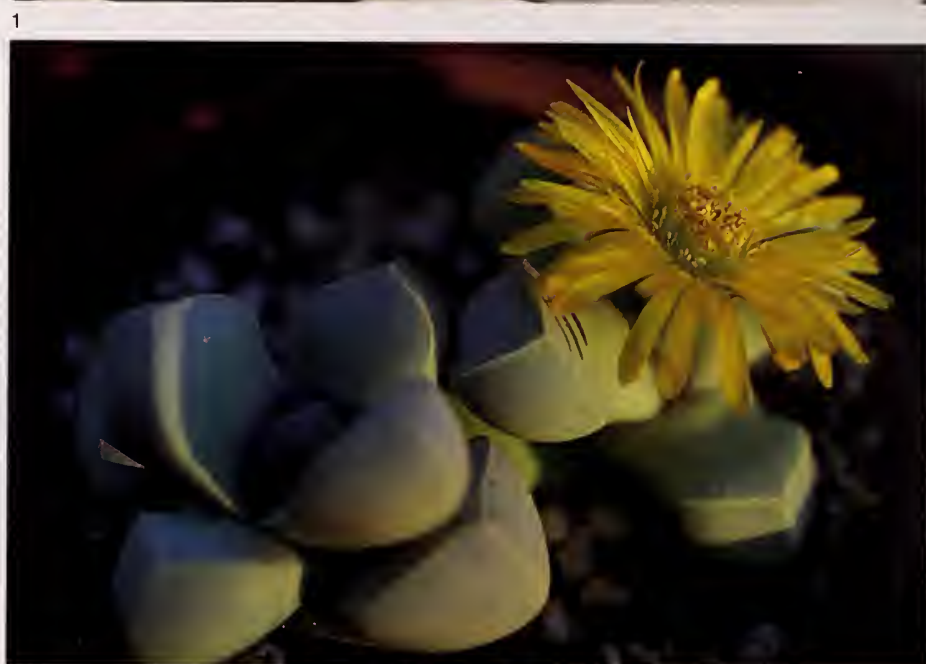
Succulents and their subset, cacti, do, of course, require attention to their rather minimal needs if they are to be at their best. But their demands can be met under irregular schedules and with relatively long periods of deprivation. I can leave my collection for a month or more by simply arranging for a weekly watering in summer or a minimal monthly watering in winter. Imagine the state of other houseplants under such planned neglect. Even with *no* attention, most of my plants would at least survive my absence.

how do they cope

That leads again to the question: How do these strange plants cope? This, and a continually evolving series of other questions, has led me to at least a smattering of plant physiology, functional morphology, biochemistry and genetics. There is a fascinating and unfinished literature to explore.

If the challenge of simply maintaining these oddities and bringing them to flower — and anyone can do it — is not enough, there is much to learn about how they manage in their very difficult natural environments. Every question leads to others. Each answer seems to offer hints on cultural modifications for the occasional "difficult" varieties. If a plant is reported to be unusually difficult, then I want that plant. If the flowers are "rarely seen in cultivation" then I want to see those flowers. So I need to know more about the plants and their specific habitats.

Reduced to simplest terms, the success of all desert plants depends upon the abil-



1. There is a strangeness about these plants. Moonstone's (*Pachyphytum oviferum*) heavy protective white coat of "wax" reflects radiation and reduces evaporation.
2. Karoo rose (*Lapidaria margaritae*). Not too difficult to grow if you keep its home habitat and substrate in mind. Very hot, dry. Many visitors to my collection comment on its geometric perfection and flowers.
3. The flower of *Gymnocalycium marquesii* is not too often seen. Its challenge is satisfied with such a production.
4. If I could have but one from among the thousands of kinds of small cacti, I would choose the plain cactus, *Gymnocalycium mihanovichii*. It flowers prolifically, is sturdy and easy to grow and blooms well under lights.
5. Structural shapes approach maximum volume for minimal surface. Sand-dollar cactus (*Astrophytum asterias*) blooms all summer if handled properly.



3



4



5

ity to store water against extremely difficult gradients of environmental drought. To gather water quickly when available is important, too, but that is not enough. To fill the various storage organs, whether roots, stems or extremely modified "leaves" will not suffice for long if the plant does not also have the means to retain and use the water in truly miserly fashion.

The most obvious means for accomplishing this resides in special structural designs: physical changes, many of them. It's as though a corps of canny engineers were trying every possible application of the laws of physics.

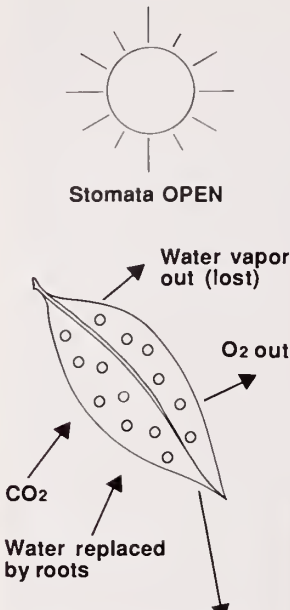
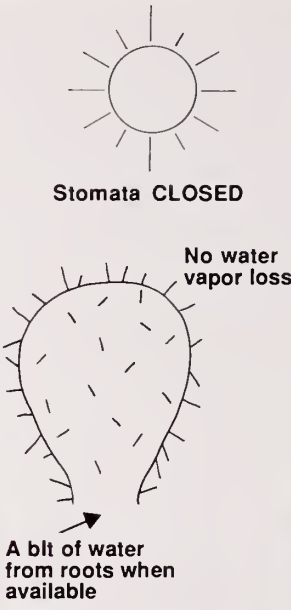
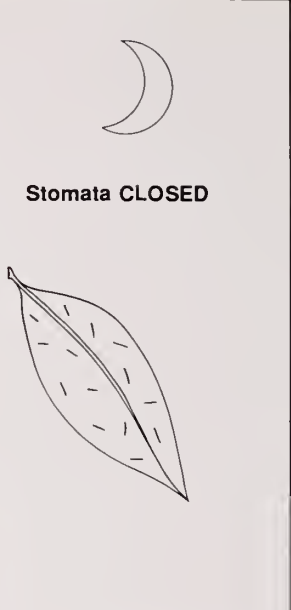
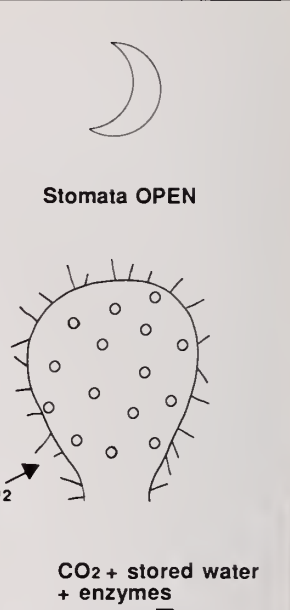
Fluted and ribbed designs allow for expansion when water is available and cast moving shadow, with the sun's trav-

erse, to shade against intense radiation. Spines of various specification and arrangement offer protective armament as well as lattice-like moving shade during daylight hours. Some spines are channeled and curved downward to condense fog and dew and facilitate its trickle down to the soil below. Structural shapes approach maximum volume for minimum surface. Their skins may be covered by protective hair, prismatic reflectors, thick waxy coats, or even a secreted stickiness on young shoots to capture and hold a protective layer of windblown sand and chaff. In some, embryo plants develop within the parent body and use every molecule of water as the old plant shrivels and gives way. Some live mostly under the ground

surface, drawn down by retractile roots while clear-windowed upper surfaces admit sunlight to subterranean chlorophyll. Others have tap roots that have been traced straight down more than 20 feet. In contrast to that, there may be a nearby plant of another family whose roots are spread as a fine net just beneath the surface to collect water molecule by molecule from the slight dew of the desert night.

Little by little, over the reaches of time, these and many other changes have been evolving towards perfection. With our present knowledge of chromosomes, genes, adaptive mutations and the drive of natural selection, it is possible to understand how these *physical* changes, one by one, may have come about.

PHOTOSYNTHETIC STRATEGIES FOR FOOD PRODUCTION

MOST PLANTS Sunrise	THE XEROPHYTES Sunrise	MOST PLANTS Sunset	THE XEROPHYTES Sunset
 <p>Stomata OPEN</p> <p>Water vapor out (lost)</p> <p>O₂ out</p> <p>CO₂</p> <p>Water replaced by roots</p> <p>Sunlight + CO₂ + H₂O + chlorophyll yields: sugars, starches, protein, fatty acids</p>	 <p>Stomata CLOSED</p> <p>No water vapor loss</p> <p>A bit of water from roots when available</p> <p>Organic acids manufactured at night + enzymes now liberate CO₂ + H₂O so that photosynthesis can proceed without gas exchange</p>	 <p>Stomata CLOSED</p> <p>No gas exchange</p> <p>No photosynthesis</p> <p>No food production</p>	 <p>Stomata OPEN</p> <p>CO₂ + stored water + enzymes</p> <p>Organic acids</p> <p>enolpyruvic isocitric malic</p> <p>These are stored awaiting sunshine</p>

We know little about the time required, but by all the evidence it appears that the deserts and semi-deserts of the world, the great dry steppes, and the high dry meadows are, on the geologic time scale, quite recent developments. Therefore, the plants that have adapted to conditions of prolonged drought must also be of comparatively recent origin.

Insofar as I can determine, no fossil or petrified cacti have even been found. None at all. Therefore we are deprived of information on step by step adaptation.

Apart from the true cacti, which are indigenous to the Americas, there are many other and exotic forms of succulent plants in the various semi-desert areas of the world – notably the southern third of Africa, a mother lode of strange species for the collector. For these plants, as for the cacti, the paleobotanical record is meager to nonexistent.

a special chemistry

In addition to all the physical changes, many desert plants have developed a special chemistry that permits survival where others would perish. We are all more or less familiar with the usual photosynthetic process utilized by most plants. We know that the great majority open their myriad leaf stomata, their breathing pores, during the day. This permits the influx of air with its essential .03% carbon dioxide. Inside

the leaf, in the presence of chlorophyll and sunlight, the carbon dioxide is coupled with glyceric acid to yield complex sugars, starches, and indirectly, fatty acids and proteins. Much oxygen, a byproduct, is released to our atmosphere. Essentially, in simplified form, that's what happens although certain enzymatic reactions are also involved that are very complex and highly specific.

The exchange of gasses via the stomata, especially in very hot and dry conditions is inevitably accompanied by loss of water vapor. Desert plants cannot afford this water loss which, much of the time, cannot be replaced by the root system.

They keep their *stomata closed during the day and open at night* with a saving of water of up to 70%. But now a different chemistry is needed. There is no sunlight at night for photosynthesis. In this special chemistry, carbon dioxide coming in at night is combined with a 3-carbon acid (enolpyruvic) in the sequenced formation of the more complex iso-citric and malic acids. These are held in storage for the following day. Then, with the sun shining, these complex organic acids are broken down to yield the necessary carbon dioxide while the stomata are closed. Simple? Hardly.

Very complex gene changes are required to replace one chemical reaction with another. We are accustomed to thinking in

terms of one gene, one small change. But in order that a chemical reaction, or series of reactions, be integrated to function, *many* gene changes would be required and, it would seem, all at once. Could a single gene be multifunctional? At my level of understanding, I'm not sure that even the professional geneticists have an answer.

These plants do present many mysteries. If it were not so, they would be less intriguing, less exciting. With all our knowledge of biochemical bits and parts one still stands in awe of the whole coordinated process.

If you would like to try your hand at a corner of horticulture that offers the unusual, that forgives lapses in your attention, and that supplies a different sort of beauty, here is a whole special scene awaiting you.

As sources of material, there are several excellent specialty nurseries. They are mostly in the West and Southwest, but these are plants that travel well. There are few losses in transit. They will never pressure you to hurry. They are tolerant of extreme heat, moderate cold, severe drought. They are tough. They are survivors.

In the relentless shimmering heat of the Kalahari and the Karoo, in the devastating dessication of the Doermanskopf and the Namib, in the searing radiance of the Sonoran summer – in these and many similar areas they fight their battles with drought, and they win.



Sources for Xerophytes

Abbey Garden (beautiful plants), 4620 Carpinteria Ave., Carpinteria, CA 93013 805-684-5112. Full color catalog: \$2.00.

Cactus By Dodie (great variety; special offerings four times per year), 934 E. Metier Road, Lodi, CA 95240 209-368-3692. Send for free listing.

Grigsby Cactus Gardens (especially for unusual and specimen material), 2354 Bella Vista Drive, Vista, CA 92084 619-727-1323. Catalog: \$2.00 (includes a \$2.00 credit slip)

K & L Cactus and Succulent Nursery, 12712 Stockton Boulevard, Galt, CA 95632 209-745-4756. Catalog: \$2.00 (refundable)

New Mexico Cactus Research (a world leader in accurately labeled seed), P.O. Box 787, Belen, NM 87002

Schulz Cactus Growers, 1095 Easy Street, Morgan Hill, CA 95037 408-683-4489. Send for price list.

Ed Storms, Inc. (finest source of *Lithops* and other South African succulents in U.S.A. Super!), P.O. Box 775, Azle, TX 76020. (Ed Storms died recently, and his plants will be divided between two nurseries. For further information, write Storms' address and your inquiry will be forwarded.)

Part of Henry Lee's xerophytic plant collection appeared as an award-winning window exhibit staged by the Random Garden Club at the Philadelphia Flower Show in March 1987. The study and culture of desert plants has been one of his personal hobbies for almost 40 years.



1. The periscope plant (*Euphorbia globosa*). One of the weirdos. Both male and female organs from apical meristem tissue. A tough survivor.
2. One of the many "flowering stones" or "mimicry plants" – *Lithops lesliei*. In habitat only the transparent, flat upper surface is above ground.
3. *Haworthia truncata*. Some live mostly underground while squared off upper "leaf" ends are transparent windows to transmit light to subterranean chlorophyll.
4. The thick, stubby leaves of tiny *Aloinopsis rubrolutea* are studded with myriads of miniature "lenses" to carry light to internal chlorophyll.



Aldo Owns the Rainbow

 by Jean Byrne

THE WINNER: 1987 City Garden Contest

Large Flower & Vegetable Garden Category

When you walk into Aldo Silvestri's office, the doors are lined with Harvest Show ribbons, about 70 of them. Approximately half of them are blue ribbons including an Award of Merit. He added 18 more this year, including 10 blues.

Aldo Silvestri's garden was only two years old when he took a second in the City Garden Contest. He really settled down to work and for the next three years won firsts: 1984 First for Large Vegetable Garden; 1985 and 1986 – ditto. He wanted more of a challenge for 1987 and entered the Large Flower and Vegetable Garden. He did it again. Another first.

Here's what Heather Remoff, captain of the first round of judges, wrote about Aldo's garden this year:

"The Garden of Eden could not have been as beautiful as this paradise set right in the middle of an industrial area. I didn't know perfection existed in the world, but it exists here. What a gardener. Mr. Silvestri uses a variety of propagation techniques: grafting, cuttings, division and saving seeds from specimen fruits and vegetables, flowers and nuts. Persimmons, figs, avocados, artichokes! Every conceivable variety of tomato. This is the Noah's Ark of gardens. I can't think of anything he doesn't grow and grow well. He sets the standard we all must shoot for. This garden must be seen to be believed."

Another team member wrote: "A mind boggling garden oasis. The owner's love of gardening and knowledge is immense. Seeds have been brought back from Italy, fruit trees have been grafted, many plants started from seed."



Aldo Silvestri, the Winner.

As Hurricane Gloria blew through Aldo Silvestri's garden with gale force winds on September 26, 1985, it knocked down the grape arbor and flattened some five-year-old fruit trees. In the middle of the hurricane, Aldo, a general contractor, directed four men who gentled the trees from the ground back to a standing position, lightly tamping the roots and base with sand and staking them with guy ropes that stayed in place for a year. The day of the hurricane Silvestri ran out and bought a video camera to record the brouhaha. The camera waggled and wavered and the zestful restoration of the fruit trees was filmed with the panache of cinema verité.

That night Aldo and Nick D'Allessio, who works for Aldo as a cement finisher and part-time gardener after farming for 21 years in Italy, gathered up the salvaged harvest to take to PHS's Harvest Show the next day: vegetables including lots of ornamental peppers and two-fisted beets, a Calomandin orange and flowers. Aldo came home with 21 ribbons that year, five of them blues.

Aldo has the tenacity and optimism of a winner. Hanging in his office is a diptych – a photograph pieced together of a rainbow arcing over his crew and their trucks at a just-completed construction job. "I own the rainbow," boasts Aldo cheerfully. Next to the photo is a certificate saying he owns a star also, purchased by his daughter for "the man who has everything." A man who owns the rainbow and stars can perform miracles.

What is remarkable about Aldo Silvestri's six-year-old garden is that it unfolded without a plan and that it flourishes where it does. Located in Philadelphia's Port Richmond, a half mile from the Delaware River, bounded on the west by I-95 just a block away, and on the east by two enormous liquid gas tanks owned by Philadelphia Gas Works, and ringed by his construction trucks and other paraphernalia of his trade, the garden is not at his home but just outside his construction headquarters. Just north of it is the Northeast Sewage Treatment works. As businesses have moved out of the area PGW has bought the land;

in parts of the area there's a desolate, bombed out feeling. Not around Victoria Street, however; the coming and going of the turquoise trucks (more easily identified on the street) and the abundance of the gardens shout: "Count us in."

At his home, a few blocks from his office, Aldo and his wife have only a tiny patch of lawn. But he has been gardening since he was eight years old. He gardened with his father at their Germantown home after his father was injured in an accident at work and could not carry water or stoop. His father Michael, who grew up on a farm in Italy, loved gardening and passed that love onto his son.

Aldo's Port Richmond garden got its start when he cleared a trash heap for a small patio behind his office for his grandchildren who had a penchant for strawberries. He liked the look of it: let's just add a few tomatoes, he thought. And he continued adding and adding.

After the garden was extended, he added the greenhouse, created from the entrance to an old subway stop. Aldo built the foundation with cement building blocks. He coaxed and bent plexiglass into place. Here he stores all the container-grown plants in winter, moving the heavier lemon, grapefruit and orange trees on rollers and a platform in October or early November. Electric heaters and some large containers of water heated by the sun supply the warmth that not only maintains the plants through winter but protects all his vegetables and flowers as they are started from seed.

Nick, the cement finisher, works about 10 hours a week in the garden with Aldo. They prune the trees every three weeks, more frequently if necessary. The airy shaping allows the light in and fruit can ripen more easily. Although Aldo insists that the mocking birds nesting in the grape arbor are his best pest control, his greenhouse cabinet is stored with neatly arranged containers of Diazinon for the vegetables, Ortho's Volck, an oil spray for the mites and Sevin for the Japanese beetles that infest the cabbages and roses.

Aldo says they try to foresee problems

continued

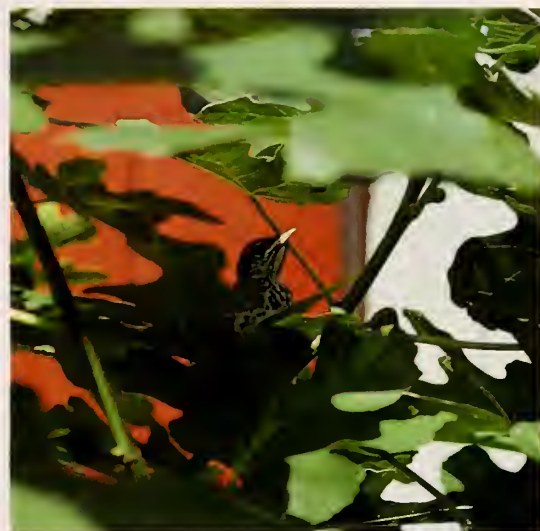
the green scene / november 1987



Aldo's garden is behind his construction office; he can nip out and weed in the middle of the day.



Aldo constructed his greenhouse using an old subway entrance. Here he's snapping the photographer as she's hoisted in a bulldozer for an overview of the garden.



Aldo insists the mocking birds, settled here in his fig tree, are his best pest control. He has posted signs around warning they'll attack from the rear if you approach their young.



Aldo and Nick D'Allessio, his part-time gardener, check out the grapes at the entrance to the garden. The mocking birds nest here.



Aldo Owns the Rainbow

photos by Mary Lou Wolfe



Aldo shows a blossom, inviting his guests to identify the plant. It's a filbert tree, and he expects filberts this year.



Inside this greenhouse Aldo stores his many container-grown trees and plants during the winter. When we were there in July, the garlic crop lying on the tables was being braided for the Harvest Show. Onions in neat piles would be joined by peppers and other plants for exhibit at the Show.



Aldo (right) and Nick (left) show off the innumerable varieties of tomatoes. To avoid wilt, he plants the tomatoes in different areas each year.

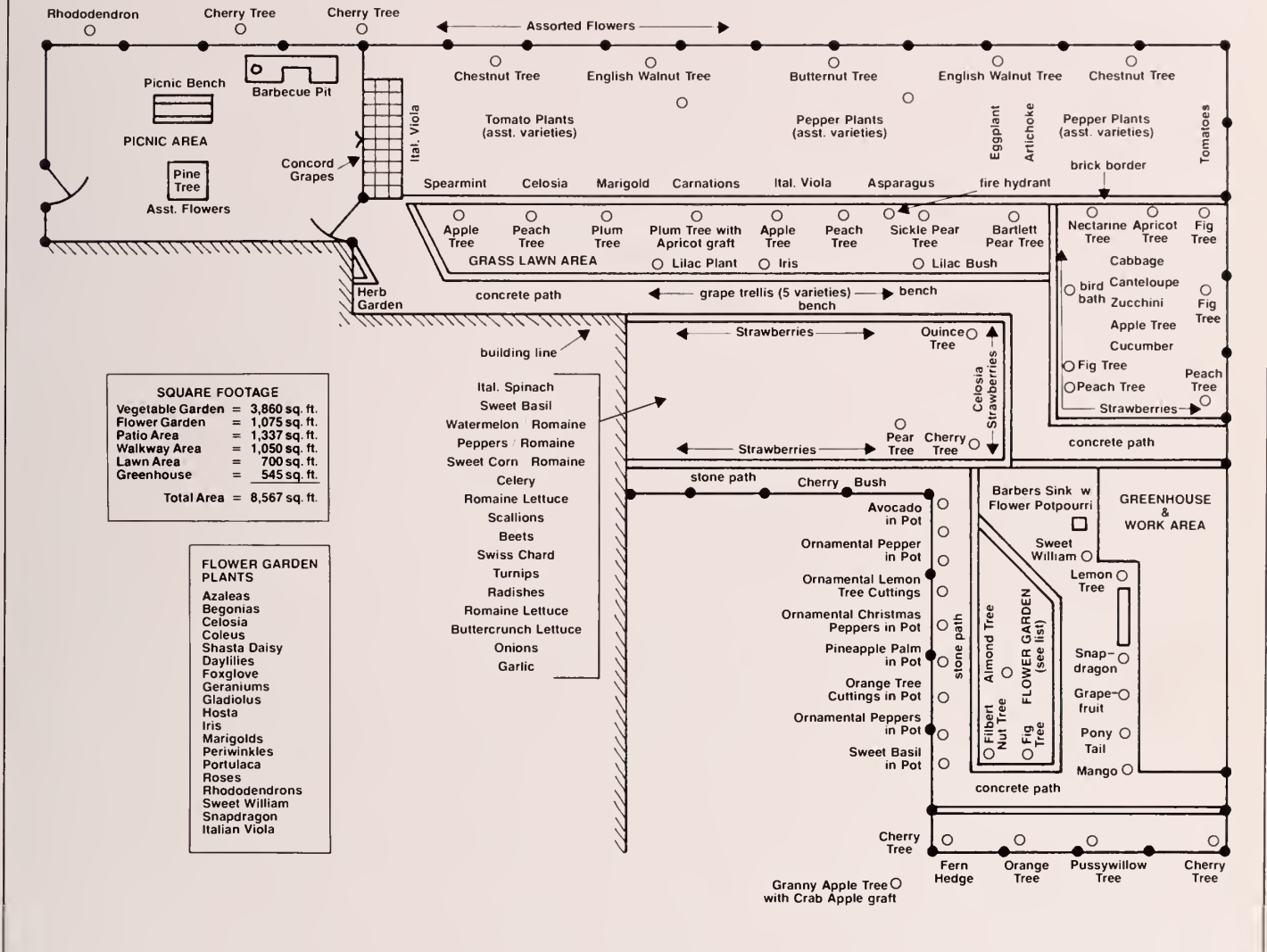
in the garden and prevent rather than treat them. They keep up with the weeding and at the end of the season they turn the soil, by hand, covering it with manure from the nearby stables. They fence out the rabbits and occasionally put some cabbage and lettuce on the rabbits' side of the fence.

Some problems are more frustrating than others. Aldo stops in the impeccably maintained garden to pick off some brown leaves from the cherries lining a path. "When they spray for weeds on I-95, the spray drifts over here. I'm out like a shot, hosing down everything. I hose it and hose it until I hope there can't be any spray left."

Aldo doesn't do it the easy way. He grows innumerable varieties of tomatoes, all from seed. All sizes, colors and shapes. To avoid wilt he alternates their planting areas with other vegetables. He gardens intensively and there's always something in the garden to see and taste. In late May, I took away a small basket of strawberries.

ALDO D. SILVESTRI'S FLOWER GARDEN

Year: 1987



A few ears of corn are half-way up in early June. In a corner there are artichokes. "Well, how do you grow those *here*?" one gardener asked incredulously. Aldo smiles, searches the sky as if for an answer. Normally expansive, Aldo will only *hint* in this case that the artichokes are a variety not available in this country. Perhaps a visiting farmer brought the plants. He smiles, shrugs and calls your attention to the handsome pear tree nearby.

Not abandoning the subject of imports entirely, Aldo guides us to a grafted plum tree bearing both the ordinary Damson plum and a Pernesta plum from Italy. He moves you on to the almond tree and next challenges you to figure out from the incipient blossom what its neighbor might be. We flunk the test. It's a three-year-old filbert, and it will bear this year. As we move to the greenhouse, he points out the three fig trees. These will be bent to the soil in October and buried in a trench a foot and a

half deep and covered for the winter.

In front of the greenhouse is an old bowling alley bench that is one of Aldo's favorite spots from which to survey the garden; it's the best spot he insists. His other favorite spot is under the grape arbor in the shade on one of the benches he bought from Channel Home Center "for under \$60." Aldo likes a bargain but he never stints. He saves: the cabinet in the greenhouse is lined with neat rows of labeled jars containing seeds. After a point he throws them out, but the supply is always replenished as he and Nick and his friends collect for the next year's planting.

Gardening is a perfect outlet for Aldo who seems placid on the surface. But he acknowledges he has to keep moving. Sometimes he is off to Bermuda to go deep sea diving or to Las Vegas for the fights. He designs his own jewelry and he produces and publishes music. His song "Come Home America" was part of the We

The People Celebration on the Parkway on the July 4th weekend. It was sung by a chorus of 200, part of the finale that included "God Bless America," "Yankee Doodle Dandy" and the national anthem along with the fireworks. He confesses he has 40 more songs on hand.

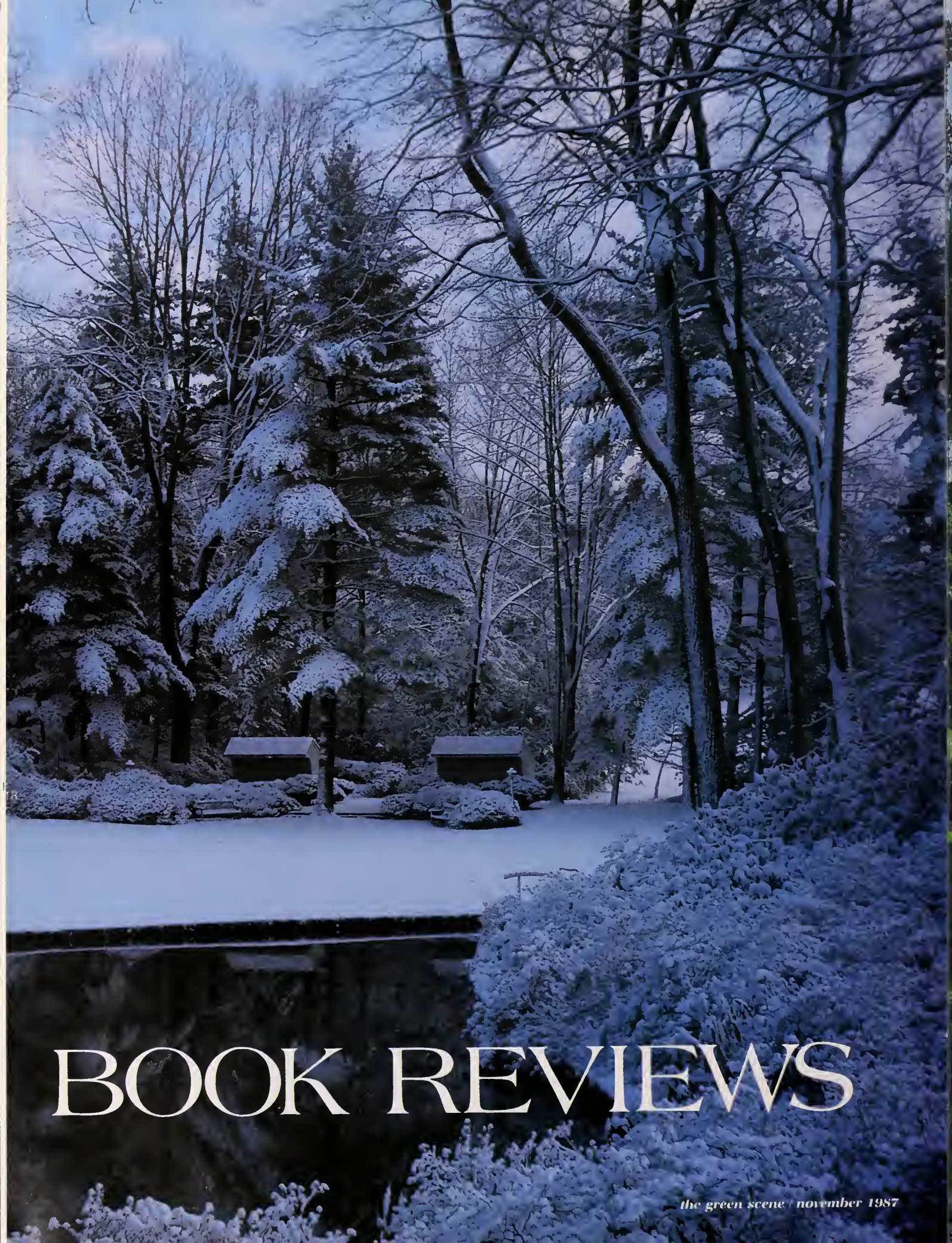
Where does he find the time to do it all? Well, it's not hard for a magician who owns a rainbow and a star

PHS invites you to participate in the
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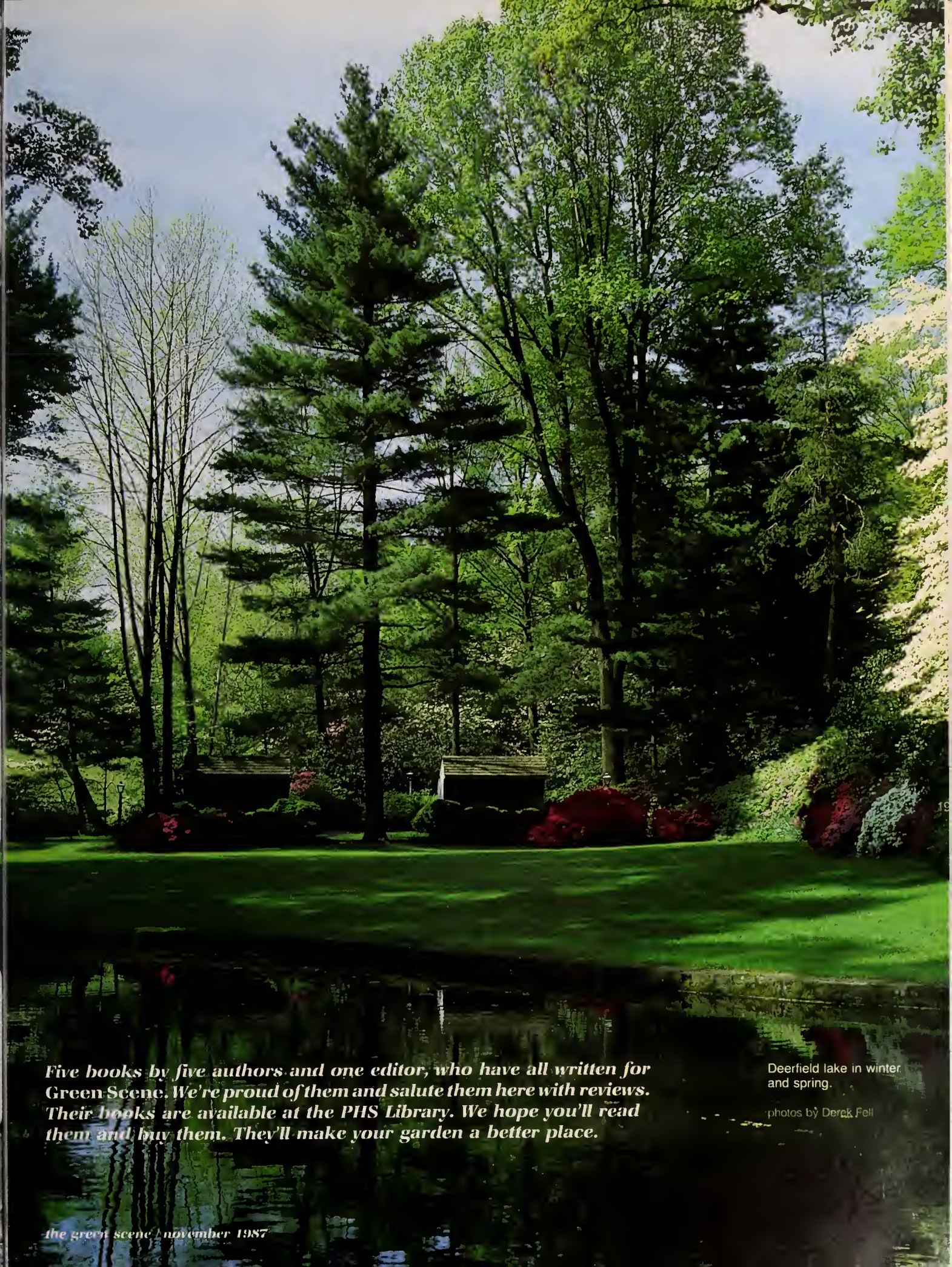
For further information call:
Flossie Narducci
Activities Coordinator
Philadelphia Green
625-8280

Jean Byrne is editor of *Green Scene*.



BOOK REVIEWS

the green scene / november 1987



Five books by five authors and one editor, who have all written for Green Scene. We're proud of them and salute them here with reviews. Their books are available at the PHS Library. We hope you'll read them and buy them. They'll make your garden a better place.


Deerfield lake in winter
and spring.

photos by Derek Fell

BOOK REVIEWS

Deerfield: An American Garden Through Four Seasons

by Derek Fell. (Pidcock Press, Gardenville, Pa., 1986, Hardcover \$35.00, 96 pages, illustrated)

 by **Mary Lou Wolfe**

What the English photographer Cecil Beaton did for British royalty Derek Fell has done for Thomas Hollowell's Rydal garden, Deerfield. Beaton presented royalty exquisitely polished, regally composed, giving Britain royal images to be proud of. Fell has used his photographic and journalistic skills to produce a sumptuous seasonal account of Hollowell's suburban Philadelphia fiefdom. While Beaton emphasized the essential Britishness of the royal family, Fell introduced the reader to a real American who loves to tell us that he "inherited opportunity, not wealth."

Derek Fell met Thomas Hollowell when producing an *Architectural Digest* piece on Deerfield. Says Hollowell, "the resulting feature ... gave me so much satisfaction and pleasure that I was encouraged to continue to improve the gardens ... and ultimately to work with Derek on this book." English-born Fell brought to this assignment decades of involvement with plants. He came to America to produce seed catalogs for David Burpee, then became director of the All-America Selections and now has his own business writing about and photographing horticultural subjects. Before coming to America Fell worked as a copy-writer for a public relations agency specializing in horticultural clients. There he met a retired school teacher, Harry Smith, whose horticultural photography greatly interested young Derek Fell. Smith confided that his most satisfying professional assignment had been photographing the Rothschild rhododendrons over the period of a year. From that year's work, a magnificent book was published.

One imagines that Fell feels much the same satisfaction about his year of photographing Deerfield. He proposed to Hollowell that doing a book on Deerfield offered an opportunity to share with the public a truly American garden and yet keep its very essential privacy. Fell's skillful writing plays up the all-American Hollowell traits of generosity, candidness ("I never had a master plan"), and love of Yankee technology. Says Hollowell, "I have a fondness for bulldozers, cherry pickers, back hoes and golf carts to get me around Deerfield in a hurry." We learn that Hollowell's Quaker ancestors arrived from England in 1683 settling within a few years in Abington

Township not far from Deerfield. What would his Quaker forebears have thought when Hollowell tore down a Tudor mansion (with servants' quarters for six) on newly acquired acreage adjacent to his original thirty-five? The mansion spoiled the view so he replaced it with grass. We learn, too, what kinds of grass seed are sowed, when the boxwood are trimmed, how specimen trees are moved and other detail gardeners relish.

What would his Quaker forebears have thought when Hollowell tore down a Tudor mansion (with servants' quarters for six) on newly acquired acreage adjacent to his original thirty-five? The mansion spoiled the view so he replaced it with grass.

For those like myself who have experienced Tom and Dorothy Hollowells' May tour, this book is a special treat. It is organized by season and includes Hollowell's own account of how the garden evolved. The reader sees the spectacular trees and vistas not only in the azalea/dogwood days of glory but in fall mists and winter snows. Discreet page references lead the reader to compare seasonal views of specific features. These pictorial comparisons with minimum cogent text speak volumes about good landscape design. Hollowell takes credit for the design and graciously acknowledges the help of experts like nurseryman Al Vick and Deerfield's head groundskeeper, Bob Hill.

Reading Fell's account of the Hollowells' acquisition of their 35 acres in 1946, one would conclude that the main impetus for developing the garden was finding "busy work" for helper Tony who lived on the property and was, fortunately, part of the deal. Tony was indeed kept occupied and must have been a saint to cope with the 10,000 seedling azaleas and 3,500 tiny boxwood plants that Hollowell soon acquired. Though he had no master plan, Hollowell developed a photographer's eye for the elements of a pleasing vista and used this skill to direct the development of Deerfield's streams, woods and meadows.

I particularly relished Derek Fell's chap-

ter entitled "The Photography." He is specific about equipment and films used. Hollowell is wedded to 35mm Leicas and prefers Kodachrome 64 color transparency film. The three Hollowell photographs included in the book are impressive. One, taken from a cherry picker 50 feet above Deerfield's famous boxwood maze, is spectacular. I can just see Mr. Hollowell clutching his Leica, directing the cherry picker, determined to capture his beloved maze in just the right perspective and light. He did just that in wide-angled clarity. Derek Fell used both a Rollei SLX and a 35mm Olympus and chose Ektachrome professional 64 color transparency film. He says he "almost always used a tripod" and preferred to shoot in morning light. My first reaction on seeing the book was to wonder how on earth, living 20 miles from Rydal, Fell caught those fleeting moments of new fallen snow at dawn, the misty views of leaves floating on the pond, those intimate, best moments that only a dedicated owner-gardener knows by daily walks and canny prescience. Fell explains "Whenever the slightest change in the weather suggested a different lighting situation I would rush 20 miles to Deerfield." Of course not every dash to Rydal rewarded him with what he had envisioned, and we see only the triumphs.

Derek Fell says "Experience teaches one to recognize those occasions when the camera will enhance what registers with the naked eye." For me he has made seeing Deerfield through the pages of this book almost better than visiting it in May in person. But don't take my word for it. Borrow a copy from the PHS Library or, better yet, purchase a copy and quickly read the message inside the book's jacket: "Purchase of this book entitles you to visit Deerfield at the height of the azalea season, in early May. For an invitation write (see book for instructions). Do it soon and experience two American originals, Thomas Hollowell and Deerfield."

Deerfield was voted Best 1987 Gardening Book by The Garden Writers Association of America Awards Committee.

Mary Lou Wolfe is a free-lance writer and photographer. She is former PHS horticultural librarian.

Gardening for Love – The Market Bulletins

by Elizabeth Lawrence. Edited with an Introduction by Allen Lacy. (Duke University Press, 1987, 238 pages, Hardcover \$15.95.)

Happier in the Country

by Jane Reed Lennon. (Prospect Hill, Baltimore, Md., 1987, 116 pages, Hardcover \$12.95.)



by Patricia Schrieber

Elizabeth Lawrence and Jane Reed Lennon are both women of the earth, passionate gardeners, gifted teachers and storytellers, who provide the reader with ample opportunity for luxuriating in the images they create with their picturesque language. Lawrence writes of the more than 30 years of friendships she enjoyed through letters with farm women and a few men, who grew flowering plants and advertised through regional market bulletins in the South. In *Happier in the Country*, Lennon describes her family's farm where she grows perennial plants and cut flowers for sale. Both women write in straightforward, conversational language.

In *Gardening for Love*, Lawrence intended to create a book based on her fascination with the market bulletins and the people she met through her correspondence. Before her death, she had already written a number of essays and had collected years of letters, none of which had yet been put into any kind of order. We owe a great debt of thanks to Allen Lacy, the editor of this book, who saw the potential contained in a simple cardboard box's contents. Lacy writes in his introduction:

"... did I think the box had a book in it? Would I agree to conjure it? ...

There was magic in that box – good clean prose that sang and spoke from the heart."

He speaks of the importance of being guided in editing "by common sense and a respect for the personal voice of the writer." In the case of *Gardening for Love*, Lacy edited without the usual give and take of writer and editor; which presented a very special challenge for him. Familiar as he was with Lawrence's many other books, which he characterizes as "true gardening classics," Lacy worked carefully to retain what he considered to be the essence of Lawrence's voice.

Lacy organized the book, beginning with essays on the Mississippi Market Bulletin (clearly Lawrence's favorite), followed by others on the North Carolina Agricultural Review and miscellaneous market bulletins from other states. A special section called "The Herb Gatherers" focuses on

country herbal practices, many gleaned from the Mississippi and North Carolina correspondents. The chapter on private bulletins describes a few of the lesser known bulletins and trade papers useful to out-of-state growers, providing a link for flower growers and fanciers throughout the rest of the country.

A valuable addition to the main text is Lacy's Source List, which includes mail order nurseries with catalogs offering "choice, rare and unusual plants," as well as market bulletins.

Gardening for Love is a truly collaborative effort. Lacy carefully threads his way

from experience."

Like any other avid gardener, she takes on the challenge of growing something new, takes advice from its grower while adapting for her own conditions, compares outcomes, celebrates successes and questions the causes of failure vigorously. Lawrence frequently refers to writers such as Pliny, Collinson and Thoreau, revealing much more about particular plants than their culture alone. Prized as highly as these historical sources are those bits of local folklore which plants carry with them, spreading their reputation as medicine, tea, salve or charm.

Lawrence does actually meet a few of her letter writing gardening friends, including Rosa Hicks who grows more than 60 native species of wildflowers in the North Carolina mountains. When Lawrence arrives at the Hicks' place, they both "sat down to talk like old friends which Rosa's letter made me feel we were."

Lawrence has a profound respect for those who are gardening for love, keeping in cultivation many valuable plants that would otherwise be lost.

In Lawrence's eyes, one of the greatest benefits of corresponding with gardeners from around the country was the way they could convince plants to grow that were not expected to do well in their climate. She recognizes that these friendships have made quite a difference in her own life:

"I suppose I could have survived over the years without the Mississippi Market Bulletin, without letters to and from people like Mr. Kimery and Mrs. Breland, without the packages of sometimes mysterious seeds and plants...But my own life would have been a bit poorer without these things."

I am glad that I had an opportunity to read the last book by Elizabeth Lawrence along with the first one by Jane Reed Lennon. A seasoned writer of gardening articles, Lennon has created in *Happier in the Country* a wonderful narrative that insists on being read out loud. Lennon chronicles a period of five years as she, her husband

Illustration by Ellen Oliver Parsons.



Reprinted courtesy Prospect Hill, Baltimore, Md

through Lawrence's commentary, answers sent to her questions, advice on plant culture and related folklore, as well as common plant names peculiar to specific localities. Lawrence is enamored of these "sweet and country names," such as princess feather (*Polygonum orientale*), spider legs (*Cleome*), joy-of-the-ground (*Vinca minor*), or redbird bush (*Fuchsia*). She also spends considerable time tracking down botanical names, using her store of plant knowledge, as well as her well-developed intuition, referring to *Hortus Third* whenever necessary. She bases good gardening sense on a combination of practical experience and study:

"Having dirty fingernails is not the only requirement for growing plants. One must be as willing to study as to dig, for a knowledge of plants is acquired as much from books as

BOOK REVIEWS



Illustration by Ellen Oliver Parsons
Reprinted courtesy Prospect Hill, Baltimore, Maryland

Jane Reed Lennon's farm in Pennsylvania

Patrick and son Pierre take on a new lifestyle. Moving from Philadelphia to restore a small farm in the Pennsylvania countryside, the transition for the family is fairly monumental:

"It was like dropping something big into a still pool. The ripples go out and out from the center and rock everything in the pond ... Buying the farm was like that. It rocked and shook our lives. It changed us all around."

As she begins relating the stories of their new life together, from restoring the old garden to collecting firewood, from growing perennials for sale to watching a thunderstorm from the front porch, Lennon creates a series of vivid images, making everything about their life seem that much more familiar. The 41 individual stories that make up the book are tied together in a loose seasonal chronology.

Ellen Oliver Parson's illustrations cap-

ture some of the special nooks and crannies of Lennon's "sweet spot" – a bird's eye view of the farm to help orient the reader, the stone end barn, a hummingbird's quick snack, the window by the chimney corner, and baskets hanging from the porch eaves.

At the basis of Lennon's story is her tremendous reverence for the land and buildings that belong to her family. It is this inheritance that the family members are committed to preserving as they work to restore the farm. The 18th century farmhouse, built by German Swiss settlers, has a special character all its own. Lennon appreciates the "skill of the early settlers in choosing sites for their buildings. This spot has water, good winter light, and good air drainage, which means that the cold air, always moving to the lowest place, does not stop here on the hillside but flows into the valley below. The farmyard is sheltered from the winds that blow hard from the west.

While Lennon and her family are separated from the settler family by 250 years, they are very much the caretakers of the past, carefully restoring and improving for the future.

Lennon's descriptive passages on the stone end barn and its architectural features conjure up an image that is both functional and aesthetic. Here again, she prizes the skills of the builders who were able to produce such a lasting structure, still of use two and a half centuries later.

The old garden, long imprisoned by a tangle of vines, weeds and unwanted trees, holds within it many horticultural surprises yet to be discovered. Lennon works her way through the border, patiently waiting to see what garden treasures will make their appearance. She lovingly adds to the collection of old-fashioned perennials, widens and lengthens the border, creating a living catalog of the plants she has for sale.

During those years when no one farmed there, the woods began to overtake the once cultivated land. The new farm family makes plans for their woods, clearing trees hit by gypsy moths, holding other sections of woods for future harvesting. Lennon obtains expert advice from a variety of sources – the state forester, the county Cooperative Extension agent, and the local representative of the Soil Conservation Service. Restoring a farm is a collaborative effort which involves the assistance of many partners.

Two- and four-footed creatures join the restoration process. Ducks and chickens peck at the ground for grubs and weed seeds. The family relies on the grazing habits of goats and sheep to keep the edges of the woods pushed back. Mockingbirds, wrens, and hummingbirds frequently delight the family with their antics.

Lennon draws apt portraits of daily routines – the maintenance of tools, the mixing of whitewash and turpentine, collecting and stacking firewood, weaving baskets:

"The spokes of the basket form the frame, and the weavers fill in around the spokes. Any tough, stringy plant can be used for basket making. I use grapevine, honeysuckle, grasses, mint stems, yucca leaves, iris leaves and birch twigs for weavers. The spokes must be very strong and

flexible."

Happier in the Country is a primer on country living, providing a view of life tied securely to the land where working with one's hands is of the utmost importance.

Patricia Schrieber heads the Education Department for PHS's Philadelphia Green.

**Excerpt from
Happier in the Country
by Jane Lennon**

We have all had breakfast, all the farm animals have been fed, Pierre is off to school, nine boxes of plants have been delivered to the shipper, two boxes of cut flowers have been put on the bus for Philadelphia, several hundred pots of plants for a community garden project have been watered, and a restaurant order of watercress and lettuce is washed, sorted, and packed, waiting in the cool springhouse for pick-up by the chef. After a coffee and a sit-down, I will begin to dig and cut, gather and pack today's harvest, keeping a careful eye on my list....

Each crop – lettuce for a restaurant kitchen, cut flowers for a florist, herbs and perennials for the landscaper – requires

time, care, attention, and luck. If the weather gets hot, the lettuce will bolt, turning bitter. If there is a violent rainstorm, flower petals are damaged and the florist cannot use them. If garden fashions change, as they do from season to season, hundreds of plants of a certain variety will go unsold.


Farming, any sort of farming, is not for the faint-hearted. There are so many things beyond control that can go wrong, and do go wrong. Farmers get in the habit of being thrilled by small successes and shrugging off small failures. With farming there is always next year. Next year the weather may be better, the timing will be better, marketing plans will be better.

100 Great Garden Plants

by William H. Frederick, Jr. Rev. ed. (Timber Press, Portland, Oregon, 1986, Hardcover \$27.95, 203 pages, illustrated.)

The 60-Minute Flower Garden

by Jeff Ball and Charles O. Cresson. (Rodale Press, Emmaus, Pa., 1987, Hardcover \$21.95, Paperback \$13.95, 276 pages, illustrated.)

 **by Christopher Woods**

It's a pleasure to review two books by three local authors. So many of the horticultural books we read come from outside the United States. Most are from the U.K. and while much of the information provided by British writers is fascinating, we are often misled by over-enthusiastic gardeners from across "the pond" who know little or nothing about the peculiar growing conditions of the Delaware Valley.

While these two books address an audience geographically broader than the immediate locale, they do speak directly to the gardeners of Pennsylvania, New Jersey and Delaware.

Both books are well-written, each having a down-to-earth practical style that informs without patronizing and stimulates without hyperbole. Although there is some similarity in style, the books are very different from each other. *100 Great Garden Plants* is a book of sophistication with complex plant combinations and subtle ideas. *The 60-Minute Flower Garden* is no less incisive but attempts to reach an audience

with less experience of plants and plant design. Both are valuable additions to the small but growing library of American garden books.

100 Great Garden Plants was originally published in 1975. The current revised edition was published last year. In the introduction, the author writes: "This is a book for gardeners by a gardener, an attempt to share both a knowledge of plants and of design experience. It is not an encyclopedia and not a textbook. It is meant to be a visit with you in my own garden, where the greatest of gardening joys is trading plants and discussing failures and successes in achieving landscape effects."

Frederick succeeds in making you feel as though you are strolling together through the garden. The book is written in a conversational and anecdotal style, which educates without being overbearing. Plants are discussed in practical detail and the author's years of experience in designing and growing shines through.

The book is divided into four sections:

large trees, small trees, shrubs and ground covers. The plants are first described in horticultural rather than botanical detail with design suggestions following. These are the most interesting segments in the text. Each plant is discussed in the context of how to choreograph it with other plants. For example, "The rich purple blossoms of *Buddleia davidii* 'Princeton Purple' show off well in either a setting of grays or yellow-greens. Gray ground cover massings of *Artemisia stellerana*, *Cerastium tomentosum*, and *Lavandula angustifolia* can be given a little height variation by the taller *Artemisia albulula*, the large woolly-leaved *Salvia argentea*, and the blue-flowered, silver-foliaged *Eryngium planum*."

Frederick gives us a fascinating glimpse of the design process from the skilled grower's point of view. Following the suggested combinations is a short history of the plant: where it comes from, who discovered it and when it was first brought into cultivation.

As this is a revised edition, the author

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has written an important new introduction. Often Frederick writes that in the 10-year period since he first wrote the book the average minimum temperature has dropped considerably. That means his garden near Wilmington, Delaware, is no longer in Zone 7 but more accurately in Zone 5. He lists a number of plants that he still recommends in general but does not recommend for his area. He suggests this may be true of other areas and recommends checking minimum temperatures with the Weather Bureau.

A minor problem with this otherwise excellent book is that the updated nomenclature is inconsistent. The Yulan magnolia listed as one of the large trees is named *Magnolia heptapeta* while further on in the text it is referred to as *Magnolia denudata*. This is confusing to those of us who have difficulty with the seemingly constant name changes of plants. It is, however, a minor point and does not diminish the value of the book.

The only thing missing while reading this book is a plastic bag and a sharp knife. You want to be able to take a few cuttings as Frederick guides you around his garden.

The 60-Minute Flower Garden is written primarily for the gardener with limited time and space. Jeff Ball and Charles Cresson contend that their ideas will enable the average homeowner to create an attractive flower border of 100 to 200 square feet with only 60 minutes of maintenance time

per week. This assertion will be welcome and perhaps surprising news to those people whose gardens are steadily taking over their lives. The book begins with showing how to analyze your property, dividing your "yard" into garden rooms. The authors suggest that each garden room is a 60-minute flower garden and can be separated into categories such as herbaceous borders for sun and for shade, a woodland garden, a wetland garden, a bank garden and something they call the decorative home garden. A bank garden is defined as a slope that is too steep to mow but has not been developed into a rock garden. The decorative home garden is a mixed border of shrubs, herbaceous perennials and annuals. The authors stress the simplicity of both the design of the garden and the selections of plants within each garden room. Plans and recommended plants are presented for each flower garden. These plans prove to be useful guides and if the reader does nothing more than copy these, they will have a garden to be proud of.

There is more to this book than just copying plans however. Ball and Cresson go on to discuss caring for the soil, watering and fertilizing plants and pest and disease management.

They finish with a chart of recommended best plants for the 60-minute flower garden. This is a good list of 173 annuals, perennials and bulbs that are readily avail-

able and will grow well in most parts of the country. Appearance, bloom period, growing requirements and other information is listed in an easy-to-read chart form. The book is well-illustrated with diagrams, line drawings, color photographs and excellent water color illustrations of various flower gardens at different times of the year.

Whether the authors' claims of one hour a week of maintenance per garden are true remains to be seen. There is a slight tendency to brush aside problems that may be deeper than are at first apparent. The chapter on pest management is brief and does not go into great detail. While commendably suggesting that the gardener not use pesticides, they shy away from the specifics of integrated pest management. Certain claims have a gimmicky nature that unbalances the practical essence of the book. One hour of weeding a year? Despite the occasional exaggeration, *The 60-Minute Flower Garden* is a practical, useful and appealing book for beginning gardeners with a desire to create something beautiful in their gardens.

We are fortunate that all three of the authors live and work in the Delaware Valley. Long may they garden and long may they write books such as these.

Christopher Woods is horticulturist/manager of Chanticleer in Wayne. He is Book Review editor of the American Association of Botanic Gardens and Arboreta *Public Garden Magazine* and monthly *Newsletter*.

A Gardener's Christmas



'Twas the night before Christmas and all through the yard
The branches were bare and the ground frozen hard.

The roses were dormant and mulched all around
To protect them from damage if frost heaves the ground.

The perennials were nestled all snug in their beds
While visions of 5-10-5 danced in their heads.
The newly planted shrubs had been soaked by the hose
To settle their roots for the long winter's doze.

And out on the lawn, the new fallen snow
Protected the roots of the grasses below.
When what to my wondering eyes should appear
But a truck full of gifts of gardening gear.
Saint Nick was the driver, the jolly old elf,
And he winked as he said, "I'm a gardener myself.
I've brought wilt-pruf, rootone, and gibberellin too,
Folks can try them and see what they do.

To eliminate weeding I've bought 2,4-D*
And to battle the bugs, Sevin WP.
To seed your new lawn, I've a patented sower;
In case it should grow, here's a new power mower.
For seed planting days, I've a trowel and a dibble,

And a roll of wire mesh if the rabbits should nibble.

More for the gardeners, some gadgets they love:

Plant stakes, a sprinkler, and waterproof gloves.

A chemical agent for the compost pit,

And for pH detecting, a soil testing kit.

With these colorful flagstones, lay a new garden path

For the kids to enjoy, and bird feeder and bath.

And last but not least, some well-rotted manure.

A green Christmas year round, these gifts will insure."

Then jolly St. Nick, having emptied his load,

Started his truck and took to the road.

And I heard him exclaim through the motor's loud hum,
"Merry Christmas to all, and to all a green thumb!"

— anonymous

*Editor's note: 2,4-D is now outlawed, sorry. Try Roundup.

This poem was found by Professor Francis Gouin in the Department of Horticulture files at the University of Maryland. He updated it slightly; someone saw it in the Maryland *Nurserymen's News* and sent it to J. Liddon Pennock who sent it to *Green Scene*.

CONTAINER LANDSCAPING IN THE CITY

 by John Cozza

I was first introduced to container gardening while living in an apartment in West Philadelphia during the summer of 1981. I had always grown a garden during summers spent in the suburbs and country, so the spring planting fever had me eyeing the sunny fire escape outside our kitchen even before I moved in. Despite the landlord's warnings against "obstructions" and "safety hazards," it wasn't long before I was scouring the streets and nearby lots for discarded wastebaskets and anything else that would hold soil. After I brought some young plants from the 9th Street Market, the landing was soon covered with the lush green of cucumber and tomato vines, and the bright blossoms of petunias.

Although that garden gave me much pleasure, it was certainly not without its mistakes and problems. I came to appreciate that obtaining basic gardening needs (such as soil) in the city is surprisingly difficult without a car; that when the vendor on 9th Street states, "Yes I'm sure these are bell pepper plants, not hot," it ain't necessarily so; and that beefsteak tomatoes grown in a five-gallon container produced beautiful green vines but no tomatoes. Discoveries like this last one helped me to realize that container gardening presents unique challenges to both plants and gardeners. A more subtle point that has been developing with my plantings in subsequent summers (which have concentrated mostly on ornamentals) is that containers are much more than spots of soil in which to plunk a few flowers you like. They are, in fact, miniature real gardens that can be landscaped with all the care, planning, and fun that go into the making

photo by John Gouker



Half-barrel in August. Declining sweet peas on trellis have been succeeded by moonflower (heart-shaped leaves, large white blossoms). Just in front of these, *acidanthera* is now in bloom. *Ismene* has finished flowering but its arching leaves add interest at the intermediate height level. Pearl petunias are largely taken over the edge and show their wonderful cascading habit.

of a full-sized bed or border.

Container landscapes can be created in any planter of five gallon size or larger. An ideal choice is the wooden half-barrel, which is attractive, inexpensive, and big enough to allow a lot of freedom when selecting plants. I've found that I really like to stuff my containers chock full of plants. Although this makes conscientious watering and fertile soil a must, the full abundant appearance of an assortment of plants growing at several different heights and cascading over the edges just can't be beat. Thick planting also allows for experimentation — if a chancy new variety doesn't perform as expected, you'll have plenty of other flowers to fill the space. When planting in a half-barrel or similar sized container, I think of the landscape as being divided into: tall background plants (including vines if there's a suitable place to climb), plants of intermediate height just in front of these, a special or central focus plant, and finally low-growing dwarf and cascading flowers for the container edge. Of course, all of these levels won't fit into every situation. For example, a planter located where it will be viewed from all sides wouldn't have a front-to-back height gradation, but will instead favor an in-the-round approach.

One idea that eventually struck me about container plantings is that they usually command more attention from the viewer than would a similar-size planting in a conventional border. It seemed only natural to want to capitalize on this effect by trying a lot of "unusual" plants in the miniature landscape — either varieties that are dazzling yet not frequently seen in this area, or

Here, vines serve as cover for the screen, while a red miniature rose and yellow lantana accentuate interplay of foliage at the middle level. At the edge, a pink pearl petunia (far left) and swan river daisy (center, tiny blue flowers) are now in bloom.

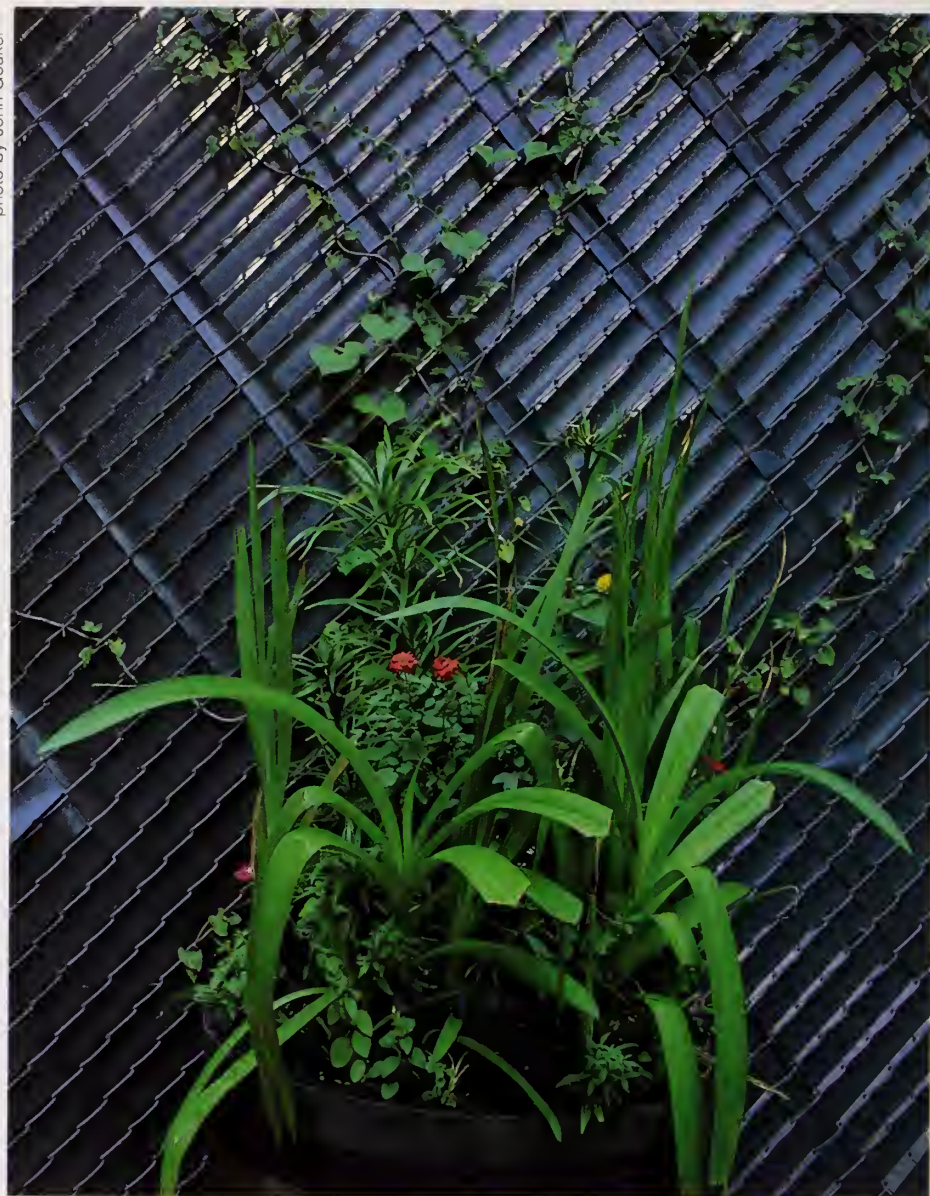
those which are more common in larger gardens but not often used in containers. The intimate contact between a container garden and the people who will be enjoying it also makes the use of fragrant plants especially appealing. Another way to take advantage of close-up viewing is through extra-miniature varieties whose diminutive flowers could get lost in the border, yet will be in the limelight at the edge of a container landscape. Fortunately, most of the unusual plants I've tried in containers are no harder to grow than the more commonly-used kinds.

selecting the plants

The show in a container garden can begin in earliest spring. A nice succession can be obtained by combining the brightly-colored Kaufmanniana tulips (blooming in late March to early April) with the slightly later Greigii tulips, then followed by a few

Containers are much more than spots of soil in which to plunk a few flowers you like. They are, in fact, miniature real gardens that can be landscaped with all the care, planning, and fun that goes into the making of a full-sized bed or border.

mid-season tulips and narcissus. I've found that most of the bulbs will survive the winter in a mulched half-barrel in a reasonably sheltered, sunny spot. With smaller containers, bulb hardiness becomes more questionable and additional protection, such as storage in an unheated room or garage, more advisable. The big-



gest problem in using perennial bulbs is that awkward period (after blooming) of slowly dying foliage, even more noticeable in containers than in the border. You can remedy the problem by removing them if you don't mind replanting in the fall, or through heavier use of those varieties with more attractive leaves. The Greigii tulips have very pretty leaves, mottled and striped in purple, which don't get too bedraggled before they die. The narrow white-striped foliage of crocuses and the attractively notched, low-growing leaves of Grecian windflowers (*Anemone blanda*) are beautiful as well and spare us the kind of agonizing slow death typical of daffodils. The transitional period can be further softened through interplanting with johnny-jump-ups (*Viola tricolor*) or pansies, which will climb up amongst the ripening bulb leaves and partly hide them. Using a miniature rose as a central focus plant provides a beautiful show at a greater height and

its bloom bridges perfectly the time between spring bulbs and summer flowers.

Lilies, whose earliest bloomers flower with the roses, enjoy living in a larger planter, and provide a spectacular background to the container landscape. I've obtained a very pleasing month-long succession in half-barrels using, in each container, two Asiatic hybrid lilies in bright reds and yellows, two sweetly fragrant regal lilies (*Lilium regale*), and one aurelianense trumpet lily. All did beautifully the first season, and though some didn't reappear this spring, they were compensated for by those survivors, which actually multiplied. Provided they received ample sun, the best repeat performers were the white regal lilies, the spotted orange Asiatic variety 'Gypsy Girl,' and the molten red Asiatic 'Prominence.' In fact, 'Prominence' is so eager to bloom that flowers actually appeared on first year plants that grew from bulbils self-sown the year before.

Half-barrel planted for dense shade. A white-flowered peace lily dominates the landscape; it will be brought indoors as a winter house plant. Colorful-leaved caladiums surround it at lower height and spider plant babies add edge accents.

vines in containers

Vines are another background option for planters set against a wall, pillar or trellis. In a large container, even the vigorous Japanese honeysuckle (*Lonicera japonica*) will have enough room to stretch out its roots. Hardy vines can be combined with tropicals such as morning glories and their spectacular night-blooming relative, the moonflower (*Ipomoea alba*). Sweet peas will perform with late spring color and fragrance (choose old-fashioned varieties for the best scent) provided they are started early and May and June are cool enough.

Linaria (L. reticulata aureopurpurea 'Crown Jewels') bears flowers that look like tiny snapdragons in shades of yellow and maroon, on wispy plants.

More restrained vines are good for smaller containers, or to cover the bare stems that tend to develop on high-climbing larger vines. A couple that have done well for me are the black-eyed susan vine (*Thunbergia alata*) and the minibar rose (*Ipomoea x hederacea*), which has beautiful variegated foliage and small cherry red morning glory flowers.

intermediate height

There are many unusual plants suitable for the intermediate height level of the container landscape. Two which combine particularly well are lantana and heliotrope. The candy-like yellows and oranges of the lantana's flower clusters contrast with the similarly-shaped but larger purple blossoms of the heliotrope. Heliotrope has the added plus of a pleasant scent and it will tolerate considerable shade.

Tropical bulbs are among the most rewarding rarities for container use. Planted in early May, they will flower at various times throughout the summer. The Peruvian daffodil (*Ismene festalis*) produces a beautiful and fragrant cluster of white blossoms in July. The attractive, arching amaryllis-like leaves then persist until fall. Following it in bloom is the peacock orchid (*Acidanthera* sp.) which sends up a gladiolus-like spike of maroon-centered white flowers that open in succession over a period of two to three weeks, and also have a pleasing scent. The foliage is upright and swordlike (like the glad's) and contrasts nicely with the leaves of the ismene. The Mexican shell flower (*Tigridia* sp.) features unusual three-petaled, brightly colored and spotted blooms and handsome pleated leaves.



Unfortunately, for me each plant bore either no flower or just one which, as the catalog promised, lasted but a day. Latest in bloom is the single tuberose (*Polianthes tuberosa*), which in September rewards our summer-long wait with a spike of waxy white tubular flowers whose night fragrance is so powerful that one plant can be easily smelled from 10 feet away. Unlike ismene and acidanthera, which grew in partial sun, the tuberose demands full sun to bloom.

A wonderful and easy tropical "bulb" for full shade is the fancy-leaf caladium. The large leaves are veined, splashed, or bordered in combinations of reds, pinks, and white, depending on variety. They are amazing in their tolerance of low light, but hate to dry out and are cut down by the first nippy fall nights. Caladiums are complemented by the flamboyant-flowered tuberous begonias, which enjoy the same conditions although requiring a little more light. A shady container can be effectively



Half-barrel in June showing height gradation. Sweet peas (on trellis) and regal lilies bloom in the rear; Asiatic lilies have just completed flowering. An intermediate level is defined by the sword-like leaves of ismene and acidanthera, with the orange-to-pink miniature rose 'Bojangles' as the central focus. Pearl petunias and other dwarf annuals color the container edge.

violet-and-white blossoms on a somewhat sprawling plant has the advantage of blooming very quickly and thus can be direct-seeded. Of course, there are many other miniature plants ripe for container use.

Container landscaping can truly be thought of as an adventure with almost endless possibilities. Naturally, it's important to take into account the physical and visual environment in planning and planting a garden in a container. After seeing what does well in a certain situation and what doesn't, changes and additions can be made throughout the season. For example, a particularly sunny container proved too dry to support some of the dwarf edging plants I had selected. I replaced them with the brightly-flowered portulaca, whose succulent nature was more compatible with the micro-environment. After the practical constraints have been addressed, there's still a lot of leeway for experimentation and personal preference. Don't be afraid to take a horticultural chance – the failures I've had have been far outweighed by the surprises and unexpected successes. Even a disappointment can have its positive side – as with my attempt to use harlequin flower (*Sparaxis* sp.) as a colorful dwarf summer bulb at the container edge. Though none bloomed, the plants proved highly decorative anyway, with foliage resembling a tiny clump of iris. Even when things don't work out quite as planned, the knowledge gained is invaluable. More important than any logical justification for experimenting, however, is the real reason for gardening in the first place: just plain having fun.

John Cozza lives in West Philadelphia and works as the gardener for Eden restaurant. He has enjoyed growing plants since childhood and is currently contemplating his future possibilities in horticulture.

landscaped by combining these "bulbs" with impatiens and tropical houseplants (which can then be brought indoors for the winter).

edging

The final touch to the container landscape is the edge planting, which provides perhaps the most possibilities for plant selections and combinations. In addition to the vast number of dwarf bedding plants commonly offered, many unusual miniatures can be started from seed indoors. Seed of some varieties are available from a number of the larger seed houses, while the most unusual ones are obtainable from Thompson & Morgan (P.O. Box 1308, Jackson, NJ 08527). An idea that works well with the scale of the container is the use of petite-flowered cousins or look-alikes of larger-flowered border plants. For example, the hybrid variety 'Pearl' petunias have flowers half the size of their grandiflora relatives, and cascade beautifully

over the side of the container. Dwarf annual phlox (*P. drummondii*) come in many bright colors and have the advantage of starting to flower at a young age. Dwarf stocks (*Matthiola* 'Stockpot') and dwarf sweet williams stay about 6 in. tall all summer and continue to bloom intermittently even in the hot months. *Linaria* (*L. reticulata aureopurpurea* 'Crown Jewels') bears flowers that look like tiny snapdragons in shades of yellow and maroon, on wispy plants. Petite blue daisies appear on *Brachycome* 'Purple Splendor,' along with attractive finely-divided leaves. Another dwarf plant that combines well with these though it has no "big brother" in the border is stardust (*Leptosiphon* 'French Hybrids'), which from pretty Christmas-green-like plants send up star-shaped flowers in white, yellow, and pink on thin stalks. All of these miniatures performed in sunny or mostly-sunny exposures, as long as moisture was adequate. Virginia stock (*Malcolmia maritima*), featuring 1/4-in. delicate

NATURE PRINTING



by Charlotte Elsner

"A key responsibility of visual art is to isolate and express the 'rhythmic vitality' and 'spiritual rhythms' that are hidden in the movement of life itself."

— Hsi Eh Ho, Chinese, 5th Century A.D.

continued



Maidenhair fern

A clump of maidenhair fern (*Adiantum pedatum*) has grown in a shaded spot of our garden for over 10 years. It came as a gift from Vermont.



Grapes in my backyard

Himrod grapes are small and sweet, and the squirrels in our yard usually get as many as we do.

Many childhoods endure as a golden haze within the confines of vaguely remembered gardens. I played under green spaces as a small child, tried to draw and paint individual trees while beginning to define my world, and finally as a graduate student in biology I dissected and analyzed the cells of individual leaves.

This last, close look focused me down from the tree to the leaf. As an amateur artist, I had always seen trees as a subject for making concrete my own private sense of place. Using the leaves as art objects seemed at first impossible: a leaf is a flat, discrete object, the utilitarian and silent contributor to almost all that is healthy and pleasant for life on earth. Then my vision shifted; the patterns of leaves emerged, and this delighted my eye. The subtle colors, the endless varieties, the reflection of the wind, rain and sultry heat on the leaves all were visible. The problem was to find a way to respond, to internalize, to interpret

these shapes, colors, sensations and associations.

It is possible to paint leaves, but the rich works of botanical illustrators from the earlier, more leisurely times rose up and cowed me. One day while trying to illustrate the difference between the leaf margins of the green and the paper mulberry trees, both hearty weed trees in my neighborhood, I placed the two leaves side by side on a xerox platen. The resulting print was lifeless grey but exciting in its possibilities. Could printing leaves be a way to paint them?

A two-week workshop in nature printing was given by Robert W. Little, master nature printer and one of the few plant printers in this country.* Since the 1930s he has revived and reinterpreted a practice known in colonial America. (See David Boorse, "Leaf Prints: Scientific Tool or Art Form," *Green Scene*, May 1976.) As well as being an artist, Bob Little is the consu-

mate field naturalist. In his prints it is clear that an educated and loving eye is selecting and positioning plant forms that then emerge transformed into evocative compositions on paper. In Bob's class we plucked, admired and printed ferns and maples, eight varieties of oaks, four ground pines, the elusive but still surviving American chestnut, poison ivy (with care), mosses and endless progressions of grasses in bloom.

Nature printing became my medium for recording and transforming leaves. Printing with color allowed the manipulation of mood, depth, time and atmosphere, i.e., the personal and expressive response that we reach for to define our subjective exper-

*Robert Little lives in Pittsburgh, Pa. He is founder of the Nature Printing Society, which now has approximately 100 members. Dues are \$15/year. Contact Luola Poellatt, Membership Secretary, Nature Printing Society, 130 Greenwood Place, Bridgeville, PA 15017.



Small grasses.
Grasses and the flower
bud from a Queen
Anne's lace growing
between pieces of rusty
metal in a trash-strewn
city lot.

Small grasses

ience of the natural world.

For an art process, the array of materials needed to print leaves is economy itself: a piece of glass, woodblock printing inks (water or oil soluble), a soft rubber roller known as a brayer, and a pair of dissecting tweezers. And paper. At first I was content with the responsive but short lived newsprint. As my appetite grew, I fell into the wonderful world of oriental print papers.

The process of printing leaves is far simpler than its description. A smooth layer of ink is rolled out on a glass surface with the brayer, and the leaf is placed on this thin layer of ink. Using the tweezers to grasp and turn the leaf, both its top and bottom sides are gently but completely inked with the brayer. The leaf is then picked up with the tweezers and carefully lowered onto a piece of clean paper. A second piece of paper is laid on top of the leaf, creating a paper-leaf-paper sandwich.

The leaf petiole or stem is located by feel through the top paper, and a finger pressed down on it keeps it from moving and smearing the paper. The fingers of the other hand gently rub and press the entire surface of the leaf through the top paper, and a finger tip is run around the leaf margin. Depending on how thick or opaque the paper is, this printing is done by feel as much as by sight; and delicate gradations of tone become possible. Finally the top paper is peeled back and laid aside. Carefully lifted with tweezers, the leaf itself is either thrown away or returned to the inked glass for another print. On the piece of paper under the leaf is a mirror image of the top print.

Our large West Philadelphia backyard has always been a source of food and green peace. I had learned nature printing in the woody fastness of the Laurel Highlands, the last significant folds of the mountains that stretch south from Pittsburgh. It

was with a gasp of enlightenment and pleasure that I viewed our very urban *clos** as an equally rich source of leaf forms. In the woods, the printer takes what is available from a rich, complex but rigidly determined eco-system. In my yard and in the arboreturns and conservatories of the city, an endless variety of leaf shapes is available.

This challenges my gardening skills and imagination. My spring catalog search is no longer only for color, flavor and disease resistance; I also choose for potentially printable foliage. Last summer I planted several types of dusty millers. I encourage ferns and tolerate a seedling of the paper mulberry tree even though its bold shape is a challenge to integrate into larger compositions. Grasses and their seed heads tempt me, even city weeds begin to catch my eye. Some day I want to begin printing

*an enclosed medieval, walled-in garden



This bulblet fern (*Cystopteris bulbifera*) grew on a stone bridge support in the Laurel Mountains. It reproduces by spores and by small bulbs that grow on its leaflets.

flowers where the problems lie in reshaping a three-dimensional object into a flat but recognizable print.

Although my own interest lies in combining botanical detail with graphic expression, nature printing as a craft has endless delights and uses. I have a lampshade that records six of the trees that share our yard (five of them not native to the United States). Very small prints or successful experiments end up on note cards. Unlike pressed flowers, the inked colors, whether realistic or impressionistic, are enduring. With nature printing, I can hold back the disappearance of summer treasures that grow from my trowel and pass through my hands. I keep an everlasting garden.

For further reading:

Creative Concepts in Nature Printing by Robert W. Little. Pub. by author, Pittsburgh, PA, 1985. (Box 42365, Pittsburgh, PA 15203)

"Making Prints from Leaves," by David S. Marx. *School Arts* (54) 1, 1954 pp. 19-22.

Nature Printing by Robert W. Little. 2nd printing. Pub. by author, Pittsburgh, PA, 1983. (see above)

Plant Prints and Collages, by Ida Geary. Viking Press, NY, 1978. (Out of print but available in libraries, including PHSs.)

Suggested sources of supplies:

Printing Supplies:

All well-stocked local art stores

Oriental Papers:

Utrecht Art Center
Broad & Spruce Sts.
Philadelphia, PA

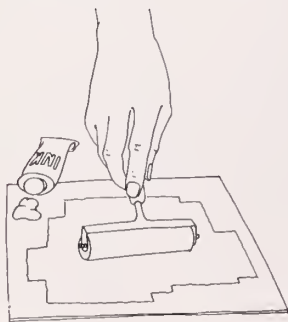
South Street Art Supply
526 South Street
Philadelphia, PA

Daniel Smith, Inc.
4130 1st Avenue, S.
Seattle, WA 98134

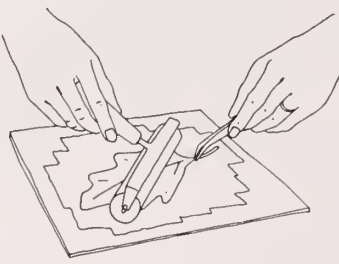
Aiko's Art Materials
714 No. Wabash Ave.
Chicago, IL 60611

Charlotte Elsner has an M.S. degree in biology; she later added an associate's degree in horticulture from Temple University, Ambler Campus. She has studied Chinese painting and calligraphy with Ru Lan Weng at the Fleisher Art Memorial.

1. Ink is rolled out thin on a piece of glass.



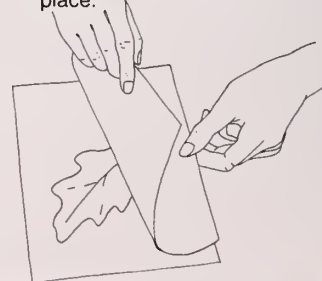
2. Both sides of the leaf are covered with the ink on the glass plate and the roller.



3. The inked leaf is sandwiched between two pieces of paper.




4. Finger pressure transfers the ink from the leaf to the two papers while a finger of the other hand holds the leaf in place.






Green Dragon




Golden Seal

BOTANICAL VOICES FROM THE PAST: *Illuminating Green Dragons and Gold Seals*

 by Joyce Stark



Swamp Pink



Wake-robin

Green dragons and golden seals sound as though they should be found in the pages of medieval illuminated manuscripts, but they are actually native wildflowers that bloom in habitats that conjure a sense of magic and mystery. I painted the dragon (*Arisaema dracontium*), and the golden seal (*Hydrastis canadensis*), and 10 more to illustrate the second calendar of the Delaware Nature Education Society.

The 1988 calendar features many wildflowers that are rare or unusual to emphasize the importance of preserving habitats to ensure their survival. As wild habitats dwindle, these unique sources of beauty with their priceless genetic information are in jeopardy.

You may still find a green dragon along a piedmont floodplain or in moist woods. Captain John Smith wrote about their abundance and reported that the native Americans pit-roasted the roots and ate them as a starchy vegetable. They resemble jack-in-the-pulpit, and my son Scott and I found them in May along the Red Clay Creek. There the springy soil was a mass of emerald grass that created a lush green tapestry behind the dragons defending their turf from an invasion of giant spiderworts (*Tradescantia virginiana*) in shades of deep pink to purple. Spiderwort is very sensitive and the flowers change from blue to pink when exposed to pollution. Its generic name comes from the royal botanist to Charles I, who introduced the plant to England. When I returned to paint the wildflowers, the dragon made a nearly perfect subject, but the individual spiderwort flowers only remain open for a single day. Design and execution had to be completed at one sitting.

The golden seal is not magical although

for years it was used medicinally to treat everything from malaria to mouth ulcers. The common name refers to the roots that resemble sealing wax. This wildflower was so widely collected that it almost disappeared although it may still be found occasionally in rich, undisturbed woods. I received special permission to paint it at Mt. Cuba Center.

OTHER GARDENING CALENDARS AVAILABLE

Five regional 1988 Gardener's Calendars and a 1988 National Gardener's Calendar for Growing Vegetables and Herbs are also available. If ordering for the Green Scene area, you will want either the calendar for Zone 7 (Mid-Atlantic and Lower Midwest Region) or the one for Zones 5 and 6 (Northeast and Midwest Region).

The photographs are by Derek Fell of Gardenville, Pa. Joanne Lawson and Louise Carter, landscape designers with offices in Washington, DC and Wayne, Pa., prepared a detailed monthly guide that includes instructions and suggestions for both the indoor and the outdoor garden: what and when to plant, when to prune and fertilize, how to detect and defeat pests and which plants are in bloom. Each of the regional calendars also include plans for a perennial and shrub border for sun and shade by the noted English garden designer and author, John Brookes. Brookes has also prepared a design for the herb and vegetable edition.

The calendars are available at the PHS Shop, local bookstores or can be ordered from Starwood Publishing, P.O. Box 40503, Washington, DC 20016. (\$9.95 plus \$1.50 for postage and handling)

Fairmont Park has issued a beautiful landscape calendar featuring scenes from Philadelphia parks. Photos are by Peter Odell. Available in bookstores for \$8.95. Mail Order: Fairmount Park Calendar, Memorial Hall, West Park, Philadelphia, PA. 19131. Send \$9.01 (includes postage, handling and sales tax). Also available at PHS.

There I was also able to sit on the ground and paint the rare swamp pink (*Helonias bullata*) with its interesting blue anthers, the wake-robin (*Trillium erectum*), and trailing arbutus (*Epigaea repens*). Gaywings (*Polygala paucifolia*), looking for all the world like puffy pink toy airplanes complete with propellers of stamens, were found on a serpentine outcrop where unusual minerals affect the vegetation. Showy orchis (*Orchis spectabilis*) and wild ginger (*Asarum canadense*) were located on a neighbor's property.

Wishing to show the complete range of habitats in our region, we included the fragrant water lily (*Nymphaea odorata*) found in many ponds. As my husband Tom and son Scott fished, I sat on the bank and concentrated on the subtle greens and maroons of the lily pads floating on the surface. I thought that I had encountered all the challenges of painting outdoors – cold, wind, flying and crawling insects, flowers that closed on cloudy days – but I soon discovered a new threat. Motion sickness began to overtake me as the water lilies rose and fell with the gently undulating waves.

The lilies were at last completed as were the other representatives of forest, meadow, streambank and roadside. I have returned to my studio to paint under easier if not more agreeable conditions.

You may order a calendar by sending \$7.50 plus \$1.50 to:

DNES
P.O. Box 700
Hockessin, DE 19707

Joyce Stark is a scientific illustrator and wildlife artist from Landenberg, Pa. All of her artwork for the calendar was donated.

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By looking intently at plants I sometimes feel I am seeing into another world, even if the plants are only the weeds and grasses growing in a local city park.
Charlotte Elsner.
See page 29.



GREEN SCENE

THE MAGAZINE OF THE PENNSYLVANIA HORTICULTURAL SOCIETY • JANUARY/FEBRUARY 1988 \$1.50



Flowers
Speak for
the Heart:
Postcards
for Courting
See page 4



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Front cover: Language of Flower Postcards once used for courting.
photo by Joe Pezeley

Back cover:
Photo by Arthur O. Tucker

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Correction for November Green Scene Nature Printing Article

p. 32 The fern print is not of the bulblet fern. The caption should read 'Fossils once shared the earth with ferns. The ferns survived, and the grasses will possibly become the dominant plant type in the future. The ferns pictured with the fossils are the Hay-scented, Sensitive and Christmas ferns.'

p. 32 The drawings under the captions for steps 3. and 4. are reversed.

Charlotte Elsner

the green scene / january 1988



15 YEAR GREEN SCENE INDEX AVAILABLE

When 75 authors got together to celebrate *Green Scene's* 15th Anniversary in late October, we put the number of stories each person wrote on their name tag. It was fun to see how much pride people took in their total, and how they checked each others' tags. Some were direct — "Hey, you did more stories than I" or "Heh, heh, I did more than *you*." Outside of the very high numbers of stories done by present and past staff members, the highest contributors were: Amalie Adler Ascher with 18 stories and M. M. Brubaker, Bebe Miles, and Gertrude Wister with 14 stories each.

We found, too, that our brilliant computer got confused. For example, Ann N. Thompson was listed as having produced one story, and Nan Thompson as producing three. Both were the same person—but the computer didn't figure that one out.

Liz Hauck has been wrestling our database into submission over the last year, using initial entries made in a sophisticated system by PHS member Janet Adams. She calculates that we printed 1131 stories by 537 authors. As you know, every July we print the year's *INDEX*; it was getting unwieldy to check a subject over 15 volumes (90 issues). So hip hooray. Now we can find stories under title listings, cross referenced to key subjects in the titles, or we can find out quickly what stories any given author has written.

If you want us to reserve a copy of the 100 page or so bound index, just send \$8.50 and we'll ship it to you as soon as it's ready. This *Index* is a must for libraries, researchers and all of you readers who have said to yourselves "I have an idea for a *Green Scene* story," then wondered if we've already covered that topic.

Jean Byrne, *Editor*

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Flowers Speak for the Heart

 by Robin Gaither

February 1st, 1910, Philadelphia. Valentine's Day approaches and a lovesick young man, Hugh Edgar Wilson, wants to let the young woman he dotes upon know exactly how he feels about her. He does not have a telephone. Neither does she. No fresh flowers are available to him, and besides, he is shy about approaching her directly. Although he is not a letter writer, he will have to put it in writing. As yet, no greeting cards, with envelopes exist, so Hugh cannot keep his feelings safe from prying eyes.

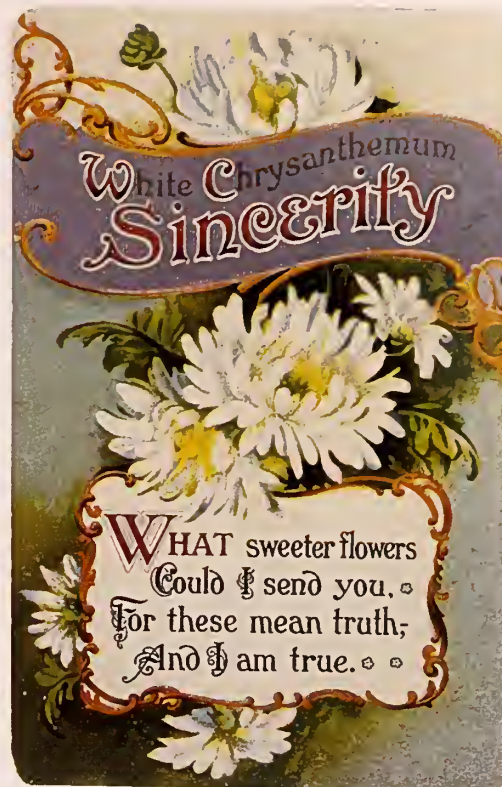
Hugh, however, has an idea. He *can* use the mail. It is delivered quickly, twice daily in town. And, he *can* say it with flowers, with flower pictures imprinted on picture post cards. Both he and the object of his affection are post card collectors, and they are members of the Post Card Union of America, whose offices are in Philadelphia. Both young people have been infected by the collecting fever popularly called "postal-carditis." In the recent past they have exchanged both post cards and glances. Hugh's problem is solved.

The social phenomenon of souvenir post card collecting, which originated in Germany in the 1880's has spread by 1910 to such an extent that millions of cards are being bought, traded and mailed in the United States. People hold post card showers. Hospitals request post card albums, to be enjoyed by all their patients. Photo albums, which formerly graced parlor center tables, have been replaced by albums of post cards. Post cards are sold everywhere: drug stores, cigar stands, hotels, barber shops, department stores and stores devoted to nothing else.

The shop to which Hugh goes used to be a book store, but the owners have found selling postcards to be more profitable than selling books. They have dropped book sales entirely. Their stock of post cards is beautiful, a large selection not only of American cards, but of European cards as well. Among these, the young man finds just what he is looking for, cards bearing pictures of flowers along with messages



photos by Joe Pezeley



that state each flower's meaning in the language of flowers, which Beverly Seaton, a botanical researcher and author, describes as a "floral vocabulary," or "symbolic system for the converse of lovers."

Hugh decides to splurge. He will treat the days before St. Valentine's Day as the lover's equivalent of the 12 days of Christmas. He buys 12 cards, an assortment from various publishers here and abroad. If he deluges the object of his affection with objects which she, too, collects, perhaps she will realize how serious a suitor he is and will respond appropriately.

Hugh's familiarity with the language of flowers did not originate with his selection of the 12 post cards. When his father courted his mother in 1884, he presented her with an imported copy of Kate Greenaway's *Language of Flowers*, published in London earlier that year. A flower dictionary, Greenaway's book contained flower names and the attributes or messages attached to each one.

As Hugh was growing up, this flower dictionary was kept, along with other gift books, on the parlor's center table. When he was very young, Hugh learned about the language of flowers by browsing through the book on rainy days. When he got a little older, his parents helped him start a post card collection of his own.

the courtship begins

The first card Hugh sends this February,

is English. It bears a picture of some pansies and is a safe and modest choice with which to begin his post card courtship, for pansies, from the French *pensées*, mean thoughts, in the language of flowers, or

Since discovering that their name, Osier, means frankness in flower language, they have cultivated the habit of always saying what they think, a habit somewhat distressing to people who know them.

sometimes thoughtfulness, thoughts of you, or think of me. He writes no message but signs the card simply H. E. W. He drops the card in the post box on his way to work at seven the next morning.

The card's recipient is Miss Daisy Osier. Her parents, almost exact contemporaries of Hugh Wilson's parents, also know the language of flowers. Since discovering that their name, Osier, means frankness in flower language, they have cultivated the habit of always saying what they think, a habit somewhat distressing to people who know them. Their daughter is outspokenly frank too, but innocent. Her name, Daisy, means innocence in the language of flowers.

The game is afoot. The courtship is on. Daisy sends H.E.W. a post card by return mail. She has recognized his initials as

those of a young man who has caught her innocent eye. She knows where he lives, and she has some language of flowers post cards, too. Recently her mother received 24 of them with a subscription to *Woman's World*, a magazine advertising itself as having "the largest circulation in the world."

Daisy, in addition to being innocent and frank, is also thrifty and quick to reply. Although the 24 cards already in her possession are not nearly as attractive as the one she has received from H.E.W., they will do, at least temporarily. The card she chooses spells out "Good Luck" in garlands of white heather. She hopes this message will encourage H.E.W. without making her appear too bold. Her postcard is in the mail well before noon.

Upon returning home from work, Hugh discovers, to his delight, that the postal service has done its work so swiftly that Daisy's reply has been delivered in the afternoon's mail. The *pensées* early in the morning have elicited a prompt, although ambiguous, response. Hugh is encouraged, however, and prepares a card to be mailed the next day. Emboldened, he now picks a card with a more ardent message. It carries a picture of a purple lilac spray and a small shield stating "Lilac: Emblem of First Emotions of Love." Daisy responds promptly; garlands of sweet peas convey her wishes for Hugh's joy.

Hugh continues to feel encouraged, even though Daisy's replies seem a little

continued



photos by Joe Pezeley



impersonal. He sends her another card, bearing a picture of a white chrysanthemum, which means sincerity, and a verse "If you're sincere this flower wear/Then I shall know for me you care."

By this time, Daisy has decided her mother's "freebie" cards are not adequate to continue her end of the courtship. She does, however, mail Hugh one more card from the series supplied by *Woman's World*. This card bears garlands of snowdrops spelling out the word hope, which indeed she does.

Immediately after putting her hopeful card in the post box, Daisy goes out to buy others that will accurately express her sentiments. While she is in the post card store, she sees Hugh talking to another young woman. Daisy is incensed. Hugh is supposed to be courting her, Daisy, and not anybody else. She quickly purchases a card that carries a picture of a yellow rose, for infidelity, and whisks it into the mail box on her unhappy way home. Daisy weeps the rest of the day away, both hoping and fearing she will hear from, or not hear from, Hugh again. She does not know that he tried to catch up with her as she fled the post card store, or that he is afraid he has destroyed his chances. Contrite, he hand-delivers another card. It carries a picture of cornflowers, the emblem of constancy, and a printed ribbon on which the words "A Greeting from thy Valentine" appear.

Daisy's revenge

Daisy enjoys a little revenge. A day goes

by before she responds with a card picturing a bunch of wild roses tied with a blue ribbon. The verse beneath the flowers states that, in the language of flowers, the wild rose means pleasure after pain, a sensation in which she is reveling.

Now that their courtship is more or less out in the open, Hugh and Daisy become bolder in their exchanges. He sends her a card picturing a cabbage rose, an ambassador of love. She responds with white rosebuds, meaning girlhood and a heart ignorant of love. His reply is stated on a card bearing a picture of moss roses, which confess his love for her. She hedges by sending Hugh a post card with a picture on it of gooseberries, which in another language, the language of fruits, she knows mean anticipation. Valentine's Day approaches, and she is getting a bit anxious. Hugh's most satisfactory response is a clover card that says be mine. Daisy replies with a card showing two photographed lovers sitting on a tree stump. The wild daisy emblazoned on the card means: I'll think about it.

As Valentine's Day draws closer, so do Hugh and Daisy. It would be satisfying to think their courtship resulted in an engagement that led to a marriage and to long happy lives together. They are a charming pair, but they do not really know each other. If they were to marry, their lives might be filled with wormwood for absence, if Hugh's job took him on the road a lot. Along with mossy saxifrage for affection, one or the other of them might indulge in tuberose,

for dangerous pleasures.

Perhaps they ought to be left still courting. If they, between them, were to send just one card a day; if they slowed down their interchange and rendered it less heady; if they were to go through every flower, fruit, vegetable or tree appearing in Kate Greenaway's *Language of Flowers*, they would have 732 days — two days more than two-whole years' worth — of botanical specimens to run through.

It is pleasing, however, to imagine them preparing for their wedding day, to imagine Daisy picking the flowers for her own bridal bouquet. Would she choose ivy for marriage? Would she mix it with the lesser celandine for joys to come? Might she carry harebells for submission. Remember, this is some 78 years ago. Or would Daisy choose to symbolize her independence with a sprig from a wild plum tree? Might Hugh wear in his lapel a spray of French honeysuckle for generous and devoted affection? If I could grant them the best of all possible marriages, I would have them both wear forget-me-nots, which in the language of flowers, symbolize true love.

Robin Gaither, who has degrees in Art History and English Literature, collects antique language of flowers post cards, a few of which are the basis for her article. Gaither is a writer and researcher, and her work has been published in the *Wilmington News Journal* and *Vogue Magazine*. She lives in West Philadelphia's Powelton Village, where she is a member of the the Powelton Gardeners.



Hybrid shrub roses, new Conard-Pyle introductions, one year after planting.

SHRUB ROSES:

The Well Kept Secret



by Lauren Springer



The new Scarlet Meidiland from Conard-Pyle for 1988.

When I think of a rose, two contrary images come to mind. The first: a warm June morning and the garden brims with fresh blossoms. It is easy then to agree with that famous English gardener and author, William Robinson, that surely these are "the flowers fairest of all in form, colour, and odour." Come the dog days of August, these same jewels of the garden have become pampered pest-ridden prima donnas bestowed with the fuzzy grey halo of powdery mildew. Hundreds of Japanese beetles greedily have consumed their blossoms, and they appear quite disgraced now that the blackspot fungus has denuded them of the lower half of their foliage. Despair sets in, and once again as I carry out the sprayer I wonder why on earth I grow these darned plants anyway?

We cherish roses especially for their flowers. The exquisite elegance of an enormous hybrid tea blossom unfurling, the old-fashioned charm of a cabbage rose fully blown with its hundred tissue-like petals exhaling sweetness, the grace of an

arching branch of a species rose covered with five-petaled blossoms, each crowned with golden stamens — this is why we grow roses and yet, believe it or not, roses exist with all this beauty of color, form and fragrance that cover themselves in flowers and luxuriant disease-resistant foliage. They ask for no winter protection and a very light hand with the pruning shears. They may even offer an added autumn bonus of brightly colored hips (fruits), and grow robustly into carefree frothing fountains of color. These are the much neglected and little known class of roses, the shrub roses.

Fortunately, they are beginning to come into their own. The Conard-Pyle Co. of West Grove, Pennsylvania, a wholesale grower, has spearheaded a new shrub rose campaign with last year's introduction of the outstanding clear pink 'Bonica,' which became the first shrub rose ever to win the prestigious All-America Rose Selections Award. 'Bonica,' hardy and disease-free, has the lush growth typical of its class, along with continual masses of the most



'Bonica' up close.

The All-America Rose Selections 1987 Award winner 'Bonica' graces a juniper hedge.



delicate and graceful buds, which open to quaint double long-lasting blossoms. These in turn produce a profusion of orange-red hips in fall and winter. This spring, Conard-Pyle is introducing several more shrub roses in the 'Bonica' family, known as the Meidilands (pronounced May-D-land). Among these are a stunning pure white low-growing shrub rose, another having deep pink single blossoms with white centers that also form hips, as well as a tall vivid scarlet-flowered shrub, and 'Ferdy,' a coral-pink single-season bloomer with a cascading growth habit and terrific red-orange fall foliage. The Meidilands are being marketed as flowering shrubs; the word 'rose' is conspicuously absent from any literature describing them. This may be an attempt to soothe gardeners who equate roses with work, work, and more work. Roses they are, however, and as people become aware of their remarkably low maintenance requirements, the Meidilands may help usher in a whole new horticultural attitude toward roses.

In England, another leading rose grower, David Austin Roses, has been developing a line of shrub roses called English Roses. This new race combines the recurrent flowering habit and greater color range of modern roses with the quaint beauty of form and strength of fragrance of the old historical roses so in vogue now. Many of the English Roses have picturesque names taken from Chaucer's *Can-*

terbury Tales. As of yet only a few nurseries on this side of the Atlantic are offering them but they should become more available soon.

three winners

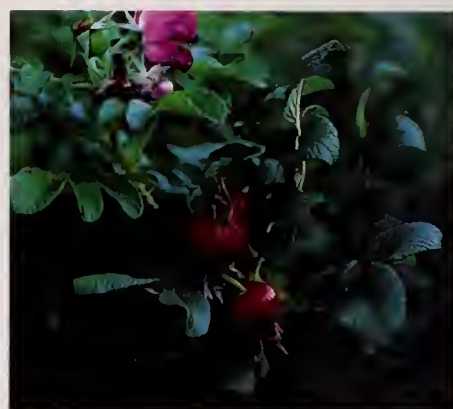
These American and British introductions will certainly give the newer shrub roses heightened exposure and popularity, but we mustn't forget the multitude of beauties from the recent and the more distant past that are available and waiting to grace our gardens. Though generally not found in local garden centers and nurseries, they are easily tracked down through the numerous reputable mail-order rose sources. There are two distinct hybrid shrub groups, the hybrid musks and the hybrid rugosas; a myriad of others that defy classification, including the diverse species roses, are another subject in themselves. Unfortunately the beautiful low-maintenance species roses for the most part only bloom once, and many grow rampantly and can quickly invade a small garden. Three, however, all hardy and disease-free, are worth mentioning here because their unique and wonderful qualities warrant space even in small gardens. *Rosa glauca* (formerly *Rosa rubrifolia*) is a tall airy six-to-eight foot shrub with arching maroon stems, dainty single pink flowers in the spring, pretty cherry-like drooping hips in the autumn and fantastic foliage. The leaves are an indescribable blend of dusky



Rosa glauca hips resemble cherries.

Rosa eglanteria, the sweetbriar rose.

Typical hips of a rugosa rose (*Rosa rugosa* 'Scabrosa').



purplish grey and copper, which contrasts with our ubiquitous green, as well as embellishing and brightening all white and pink flowers grown near it. *Rosa eglanteria* (formerly *Rosa rubiginosa*), the sweetbriar rose, is another tall arching shrub with delicate pink single flowers in the spring, showy orange hips in the fall, and lush medium green foliage that smells deliciously of sweet ripe apples, especially after a warm rain. The last one is *Rosa hugonis*, the Father Hugo rose, whose enchanting single primrose yellow blossoms come quite early along with the blue wood hyacinths (*Scilla campanulata*) and the late tulips. It is endowed with great healthy masses of soft ferny foliage that gives the bush a uniquely fine yet lush texture rarely found in deciduous shrubs of any kind. Its fall color can be bright gold and orange.

hybrid musks

Returning to the modern shrubs, the first distinct class is the hybrid musks, developed by the English Reverend Joseph Pemberton at the beginning of this century. Pemberton aimed to create a continually blooming rose with great fragrance; all roses in this group have these excellent qualities. The musk fragrance is intensified by the cursed humidity of our area. On those heavy warm days in mid and late summer, the scent of the huge flower trusses of these four to six foot high shrubs carries far and wide. If planted near the house, their perfume will be enjoyed indoors as well. The hip-forming ivory 'Danæ' and crimson 'Wilhelm,' double apricot 'Buff Beauty,' and the maidenly group of blushing white 'Penelope' (who also forms hips), coral 'Cornelia,' double pink 'Felicia,' and dainty single pink 'Kathleen' are some of the choicest hybrid musks available.

rugosas

The other group are the rugosas, so named for their rugose, or wrinkled, leaves. These are toughest of the tough. In sweltering heat or temperatures well below zero, in

heavy muck or impoverished sand sprayed by the salty sea, the rugosas survive and thrive. Their indomitable vigorous and thorny character makes them ideal hedges, screens, windbreaks, and impenetrable barriers for "repelling small children and dogs," as one persnickety author put it. The glossy dark green foliage turns mustard yellow and then sometimes a wine or russet red in the fall. It remains

These rugosas are toughest of the tough. In sweltering heat or temperatures well below zero, in heavy muck or impoverished sand sprayed by the salty sea, the rugosas survive and thrive.

disease-free all season; in fact, it resents any sort of chemical application. Rugosas begin their recurrent blooming season earlier than most modern shrub roses, coming into full flush by mid-May in our area. The flowers, smelling clove-like, come in all colors and shapes, even with unusual fringed edges similar to garden pinks or dianthus, as exemplified by 'Pink Grootendorst,' the pink 'Fimbriata,' and the red 'F. J. Grootendorst.'

In autumn, many rugosas form large round hips resembling ripe cherry tomatoes in both appearance and in their high vitamin C content (which makes for tart but tasty preserves). Among the best of this large group of shrub roses are the plain species, the single carmine-colored *Rosa rugosa*, the elegant *Rosa rugosa* 'Alba' (single white), 'Blanc Double de Coubert' (semi-double white), 'Roseraie de L'Hay' (double plum), 'Frau Dagmar Hartopp' (single light pink), 'Dr. Eckener' (semi-double soft yellow), and 'Jens Munk' (semi-double pink). 'Agnes' (fully double amber), and 'Constance Spry' (double pink cabbage-rose shape) do not repeat dependably but are noted for their especially beautiful blossom color and shape.

Compare shrub roses with their gawky stiff hybrid tea relatives; they have the

graceful form and good healthy foliage that integrates them into any garden. William Robinson once lamented that "there is a great loss to the flower garden from the usual way of growing the rose as a thing apart." Isolating roses in an awkward formal arrangement in the midst of an otherwise informal garden, creates a veritable ghetto of disease and chemicals, so why not combine the charming single yellow-blossomed 'Golden Wings' with some crimson barberry (*Berberis thunbergii atropurpurea*), or another purple-leaved plant, the smoke bush (*Cotinus coggygria* 'Royal Purple')? Or grow the pink beauty 'Constance Spry' behind a cottage type perennial border full of columbines, foxgloves, bluebells, and such. Many dark evergreens like arborvitae, holly, and yew can be lightened and brightened with pale-colored bloomers like the sumptuous single white 'Nevada' or the fully double soft salmon 'Nymphenburg.' Grey-foliaged perennials and herbs such as lambs' ears, Russian sage, rue, blue-beard (*Caryopteris x clandonensis*), ladies' mantle, cat mint, lavender and various artemisias, are perfect foils not only for the aforementioned pastels, but also the deeper, stronger reds, crimsons, and plums. 'Cerise Bouquet' is especially nice with these because it not only has a beautiful crimson blossom with a heady raspberry fragrance, but it also repeats those grey tints in its own foliage. Climbing vines grown through a shrub rose, for instance some of the less rampant honeysuckle species and the great variety of *Clematis* types, can add extra contrast of both color and form. *Clematis* appreciates cool shaded roots and warm sunlit shoots, so growing it through a shrub suits it ideally. The white *Clematis* 'Henryi' might be tried with the rose-pink single 'Erfurt,' or the similar 'Sparrieshoop' and 'Marguerite Hilling.' Or perhaps a white rugosa rose with the deep purple *Clematis x jackmanii* or the dark velvet-red 'Niobe.' Yellow roses are a perfect complement to the many soft lavender-colored *Clematis* cultivars. Shrub roses can also help integrate the lonely for-



Rosa rugosa 'Jens Munk.'

The modern hybrid shrub rose 'Golden Wings.'

mal rose garden with the rest of the landscape by linking flower shape and color and at the same time softening the overall effect.

maintenance

The shrub rose is indeed a low maintenance plant, needing no winter protection, and little if any spraying or pruning, all of which may even be detrimental in some cases. An occasional small outbreak of blackspot or powdery mildew may occur on some varieties, but never enough to spoil their beauty or in any way threaten their overall health and vigor. While the buds are still dormant (early spring) judiciously removing old dark, corky canes can help rejuvenate a plant, but otherwise prune away only dead, diseased, and damaged wood (known as the three Ds) and perhaps shape a little to help the appearance of a particularly gawky cane. It really is best to let a shrub rose grow and mature into its natural shape, be it upright, broad and spreading, or drooping and arching. As for deadheading, only those gardeners who truly enjoy it need to do it. Many shrub roses form beautiful hips that would be sacrificed were deadheading continued throughout mid and late summer. Also, many shrub roses, after an "awkward teenager" period of two or three years, become veritable giants of six or more feet in height and girth. When such a shrub comes into its June flush, most gardeners will happily turn to other more pressing chores before attempting to mount a ladder and cut off hundreds upon hundreds of blossoms. Besides, there is beauty in all stages of a rose blossom's life, from bud to fully blown flower to the gentle carpet of petals on the ground. Save deadheading for late winter as part of a general light clean-up and pruning of the shrub rose, once the hips have either fallen, shrivelled to nothing, or been eaten by the birds. The only requirements for a flourishing shrub rose are at least a half day (six full hours) of sun, preferably all day, and reasonably moist and rich soil (rugosas do not



photos by Lauren Springer

require the latter).

So, why not indulge yourself and your garden in one or several of these wonderful orphans of the rose world, and add color and fragrance to the otherwise endlessly green summers? There are few things in this world that give so much beauty for so little trouble as does the shrub rose.

Reading

For more on shrub roses, the definitive book is *Shrub Roses of Today*, Graham Stuart Thomas. London, J. M. Dent and Sons, Ltd., 1962, reprinted 1985.

Sources of Shrub Roses

The Antique Rose Emporium
Route 5, Box 143
Brenham, TX 77833

Harrison's Antique and Modern Roses
P.O. Box 527
Canton, MS 39046

Heritage Rose Gardens
16831 Mitchell Creek Road
Fort Bragg, CA 95437

High Country Rosarium
1717 Downing Street
Denver, CO 80218

Historical Roses
1657 West Jackson Street
Painesville, OH 44077

Liggett's Rose Nursery
1206 Curtiss Avenue
San Jose, CA 95125

Lowe's Own Root Rose Nursery
6 Sheffield Road
Nashua, NH 03062

Pickering Nurseries, Inc.
670 Kingston Road (Highway #2)
Pickering, Ontario, CANADA L1V 1A6
(some David Austin Roses offered)

Roses of Yesterday and Today
802 Brown's Valley Road
Watsonville, CA 95076

Wayside Gardens
Hodges, SC 29695-0001

Lauren Springer is horticulturist/rosarian at Chanticleer, a private estate in Wayne, PA. She lectures on various horticultural topics and has given workshops on roses and annuals for PHS.

EVICTING THE MOLES

 by Jean Trench Brown

Did you host unwelcome guests in your garden last summer? Uninvited little creatures who fly or scurry, leap, nibble, sting or bite? How about the unseen miners in your garden soil who simply gobble up your worms, grubs, spiders, snails, cutworms and the like — or who even enjoy an occasional lizard or frog — those silent visitors who burrow a few inches beneath the surface, raising the turf in a corrugated maze?

The common mole, *Scalopus aquaticus*, seems to "swim" through the earth using the breaststroke; however, he never goes near water or wet areas, in spite of his name. Once known as the "Gentleman in Velvet" because of his soft, dense fur, he minds his own business and rids the soil of many of those pests who do eventually eat your rosebuds and help themselves to the bounty of your garden. This stocky 6-8 inch recluse even aerates your lawn, nursery, or golfcourse, as the case may be, whether you like it or not! Slim compensation for the subterranean channels of damaged roots, ridged lawns and unsightly mounds of earth that frequently appear if you happen

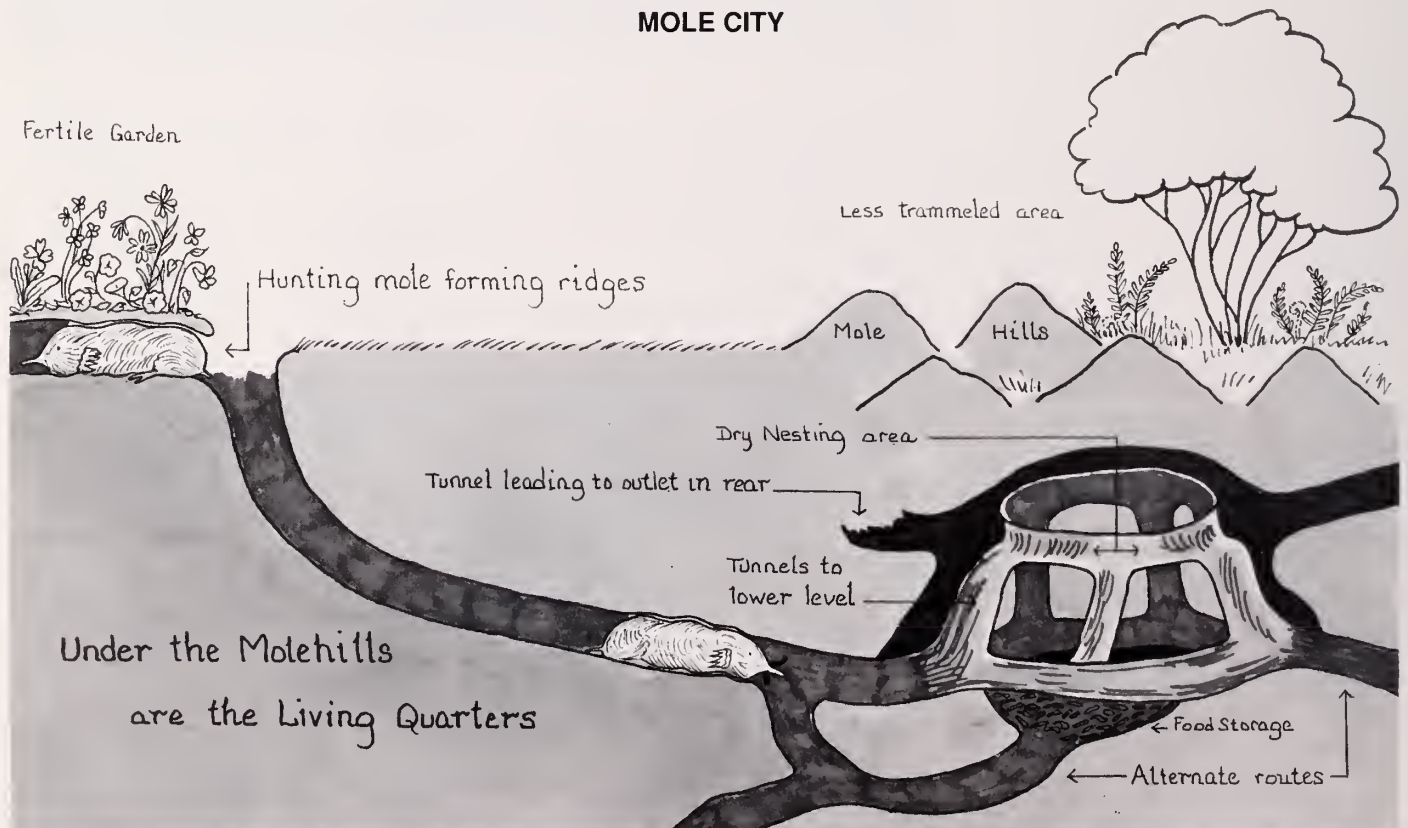
to be landlord to a sizeable *Scalopus* colony. These "molehills" indicate the deeper channels — the dry nesting beds, the storage caves, sleeping quarters, and refuge from extremes of climate. Moles are carnivorous and eat little or no vegetation, but their tunnels are often used by other smaller rodents who do enjoy this easy access to root vegetables, bulbs, and other subterranean delicacies.

The mole most often seen in eastern United States has a pelage or coat that ranges from brown to almost black, with a silvery grey sheen. It is one of the strongest animals for its size, and its body, which appears to be a shapeless little lump, is actually perfectly adapted for tunneling through the earth. The wedge-shaped head with long pink snout, is set well into powerful shoulders. Although the neck barely shows, it does contain seven vertebrae as in other mammals — the same number, for example, as the neck of a giraffe. Its short, strong forelegs have paddle-like, heavily clawed paws, and its body, which twists like a drill, is further

propelled by small mouse-like hind feet. Up go the well-known ridges. The delicate fur can lie in either direction, reducing friction as the mole digs, and a set of well-developed muscles directly beneath the tough skin, enables it to give its fur a vigorous shaking, to keep it clean and free of dirt. The snout, although a burrowing probe, has many nerve endings, denoting an acute sensitivity to smell and vibration; the tail acts as a miniature radar system, thus precluding an unforeseen attack from the rear. Tiny eyes are hidden beneath its fur, which may help it to distinguish light from dark, and instead of visible ears, openings in the head lead to the auditory canal, which provides the mole with ultra-sensitive hearing.

For an animal that rarely lives beyond three years, and one that is solitary in its habits, *Scalopus* establishes a highly elaborate underground pattern. So ingenious is the design of the deep caves that fresh air is drawn in through the tiny pipes formed by earthworm activity. Radioactive tracers have been used to follow and rec-

MOLE CITY





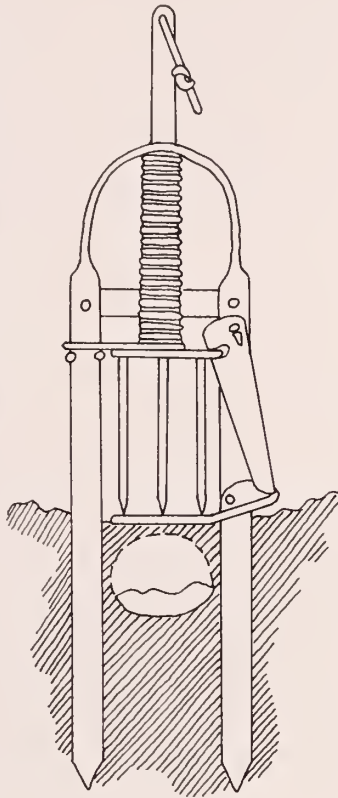
ord the secluded movements of moles. Few animals must work as hard just to keep alive; if deprived of food for more than eight hours, they will die. This accounts for their voracious appetite and constant need to burrow through the most fertile ground available — usually our gardens. Since they do not hibernate, they must be prodigious hoarders of food. By biting off the front part of earthworms, they destroy the worms' center of coordination so they are unable to crawl away, but remain alive. In this way, thousands of worms are preserved in deep chambers, a source of fresh food in time of need.

The mole has few predators as the very dimensions of their runs limit the size of would-be intruders. They have been known to attack and kill other species above ground that are larger than they, not to mention, on occasion, the deadly attack and subsequent cannibalization of their own kind. They mate once a year and produce three to five offspring in the spring. During gestation, the female may venture outside to gather dry grass and leaves to line her nest, but woe to any animal who assaults her; besides being fierce fighters, they are protected because they taste unpleasant to would-be predators. The young moles, naked and helpless at birth, are ready to forage for themselves when they are about two months old.

traps and tricks

There are probably as many ways to trap moles as there are people to trap them. Mole-hunting was a viable profession in Europe in the 19th century; the hunter, who was paid for his bounty by the landowner, would hang his catch on fence rails to prove his prowess. The trap often used in this country is the spring-set trap (see drawing). Since moles appear to be fairly ritualistic, their foraging times may be followed quite accurately. You can determine which runs are in active use if you flatten the raised ridges in the evening and check to see if they have been raised again by morning. Set your trap securely with prongs straddling the raised ridge. Be sure to walk softly, as vibrations in the earth signal danger to the mole and approaching footsteps may send them scurrying to deeper channels. Also, you would be wise to wear gloves when you set the traps, so no

Art adapted from a sketch in Pennsylvania Wildlife Nuisance & Damage Control pamphlet #6 (1981).



Setting a harpoon trap

human scent is on them. Observe your traps at a set time in the morning; if you wait too long, you may find them sprung and the victims gone. Incidentally, if you're wondering about the value of the pelt, forget it. Once popular in Victorian days, moleskin is of little commercial value today.

Other methods will also discourage

By biting off the front part of earthworms, they destroy the worms' center of coordination so they are unable to crawl away, but remain alive. In this way, thousands of worms are preserved in deep chambers, a source of fresh food in time of need.

moles, the principal one being to remove their food source. The "milky spore" treatment has been used with varying results. The bacteria in milky spore powder infects the grub life in the soil, but it is a slow

process, expensive, and not altogether effective. It takes at least two years for the grub life to disappear. Commercial exterminators often resort to using poisoned peanuts or worms, or even mothballs (arsenate of lead, used in the past, is prohibited by law); they may fumigate the runs, or even try flooding them.

In the summer of 1986, our garden appeared to be "mole city." In a less trampled part of the lawn, not far from a barberry hedge, two or three large mounds of dirt appeared. More and more dirt erupted daily until there were twelve molehills of varying size. These earthworks were silent testimony to the labyrinthine living quarters of a sizable colony of moles. These pesky animals then excavated in the vegetable and flower gardens all summer. They fatally aerated the roots of a favorite rose, and their entourage of field mice nibbled the carrots and beets and ate large chunks from the dahlia corms. We did catch only two moles in traps. Trapping, for us, is an unpleasant business, so we turned our sights to evicting the intruders in a more humane way.

Early in the spring of 1987, I decided to try "beneficial nematodes." According to the supplier: "Nematodes live in the soil where they actively search for insect hosts....Once inside the host's body, (they) release a symbiotic bacteria which kills most insects within 48 hours. Nematodes then feed on the decomposing insect and reproduce."¹ I ordered 10,000,000 nematodes, genus *Neaplectana carpocapsae*, for our 44 x 26 garden that had been so vulnerable the preceding summer; this did not include any lawn area. The nematodes arrived in a sponge with instructions to pour warm water over it and repeatedly squeeze or "knead" it until the all-but-invisible organisms had left the sponge and were in the water. This done, I placed the solution in an ordinary two-gallon sprayer and sprayed the entire area, except two wide rows of strawberry plants, too densely foliated to allow any penetration. (These nematodes do not affect worms, I'm glad to say. Who would want a garden devoid of earthworm plowing?)

continued

¹ *Natural Gardening Research Center, 1987 Guide to Natural Control of Garden Insects, Diseases, and Animal Pests*, Sunman, IN p. 25

In my efforts to repel our burrowers, I purchased six gopher purge plants,* (*Euphorbia lathyris*), whose roots are alleged to exude an essence so obnoxious that no mole will venture near it. I planted the *Euphorbia* in strategic locations near old mole runs and waited. They grew into straight-stemmed stalks, from three to four feet tall, and though they were not much to look at, they were certainly worth putting up with, if they did their job. Then I planted day lilies (for no other reason than I had some extra ones) where the mud mounds had been so prominent the year before, figuring that my digging activity would annoy the sensitive inhabitants below, if they were still there. And then I did one more thing, call it an old wives' remedy if you like. I dug in a number of small soda bottles with only the rims above ground. These I put near the roses and the columbine and under the viburnum bush where there was a suspicious looking hole. Was it the song of the wind in the bottles that disturbed my erstwhile visitors? The smell of the *Euphorbia* roots? The dearth of succulent bugs after the nematode invasion? Well, why not all of the above? No moles burrowed in our garden in 1987. Well, I won't say they didn't

How Do You Stalk The Moles?

Do you have different plans for getting rid of these pesky guests? Share it with our readers. Write Editor, Green Scene, PHS, 325 Walnut Street, Philadelphia, PA 19106.

make a tentative appearance, but that was all. Back by the woodshed was a little ripple of earth—there's no grass there, just hardpan—it must have been pretty slim pickings. Suffice it to say, they had gone.

But wait. In mid-August, what did I see creeping along the fence next to the gopher purge? A ridge—a softly domed tunnel. Moles. But they were being quite polite; they concentrated where the pea-vines had been pulled up. And then, a few days later, they left as mysteriously as they had come. I can only assume that the nematodes had made short work of the grub life, or else it was too late in the season for grubs. Now, I couldn't very well get down and smell the gopher purge roots, but they certainly didn't deter my late summer visitors. I don't recommend *Euphorbia lathyris* unless, perhaps, you have gophers. If you

*Gopher's purge is available from Gardener's Eden, P.O. Box 7307, San Francisco, California 94120-7307. Phone 415-428-9292. The catalog says gopher's purge is good for rebuffing moles as well as gophers.

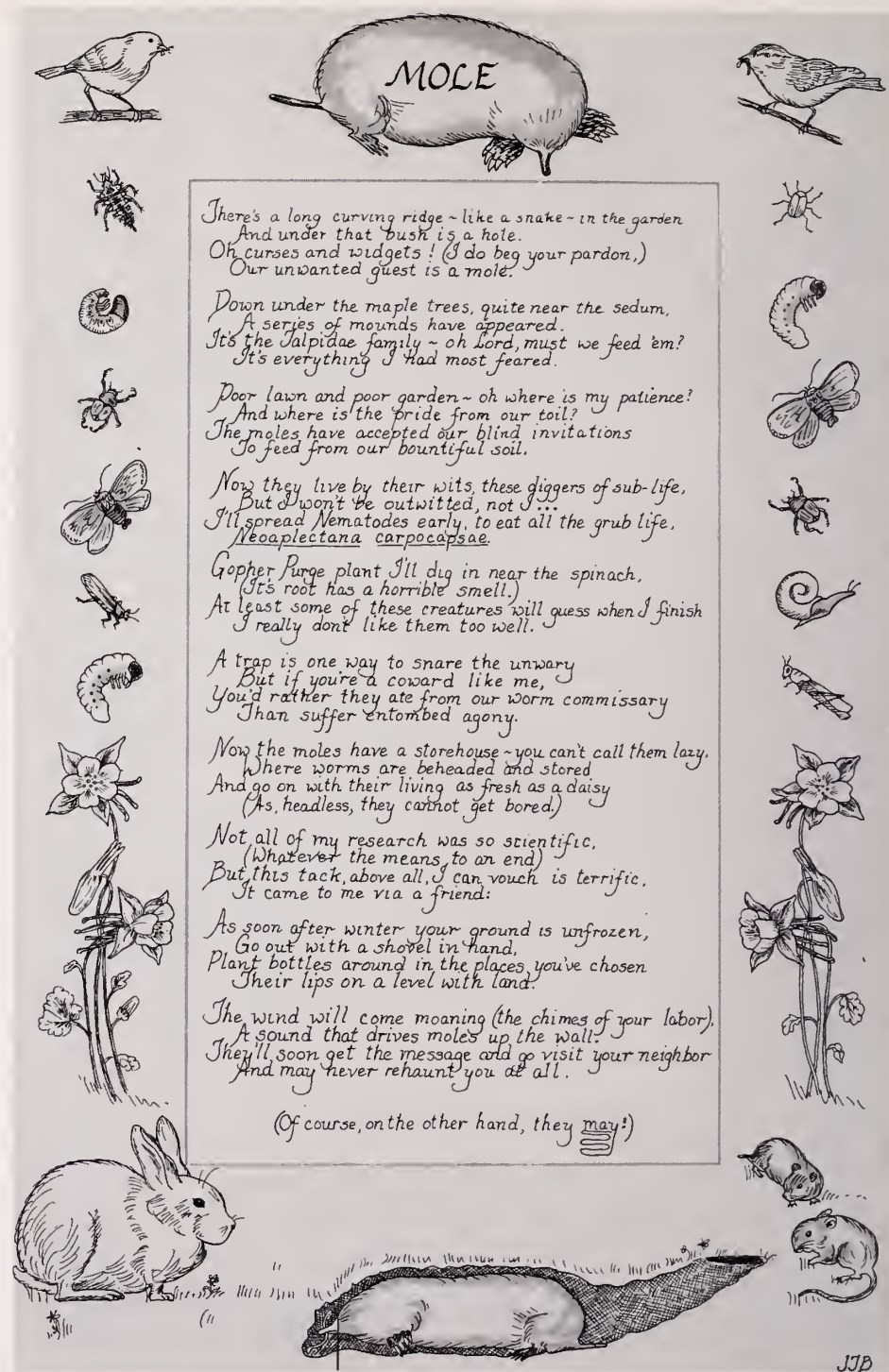


Illustration and poem by Jean Trench Brown

are distressed by the use of traps, as I am, and if you have neither a dog nor a cat to frighten the invaders, try living with this unwelcome guest. Discourage him by flattening his ridges and leveling his hills, and he may get the message and move to a more hospitable location. In the meantime, there's a little device to be had from the Alsto Company in Galesburg, Illinois, called a "Klippity Klop (61401)." Two of these rather quixotic, slightly tipsy pinwheels are alleged to clear out the moles from an area the size of a city block. Together they cost about \$16. This twist in

moleridders seems as likely to work as those electronic devices that send shudders into the soil at triple the cost.

Anyway, winter is here and I feel quite kindly towards our burrowers, now that they've gone. (Or have they?)

After many years of helping to run a farm in Bucks County, Jean Trench Brown went to work at the Morris Arboretum where she continued to develop her interest in horticulture. She retired in 1985 and now works with her husband Geoff on their one-acre plot near Doylestown. Any spare time is spent as a free-lance writer.

BIOLOGICAL PEST CONTROL WORKS IN A CITY GARDEN



by John Cozza

photos by Ann F. Rhoads



Praying Mantis

When Rich noticed that an insect had infested his backyard, he promptly sprayed the entire lawn and garden with a potent pesticide. That night, his beloved old basset hound, Sheila, began to heave and shake violently. Two days later, after much suffering, Sheila was dead.

Although Rick lives in Southern California, save for the bougainvillea and Australian bottle brush tree blooming outside, it could just as easily have been Philadelphia. The brown bottles sitting in so many garages and the numerous ads for the various "bug blitzes" and "weed wipeouts" attest to the indiscriminate use of poisons in the home garden. And yet, the pests always seem to be there. As a natural period of pause and contemplation, perhaps the winter is a good time to plan for alternative methods of pest management, ones that are more effective and easier to live with. Particularly interesting possibilities lie in the fast-growing science of biological controls.

Biological controls are basically those

that use various other organisms to combat the pests. The most simple example of this is handpicking, a sometimes nasty but highly efficient way to get rid of larger insects before they become too numerous. Other biological methods follow the same general principle, except they use beneficial insects, fungi, or bacteria to do the policing work. All share the advantage of being selective for the vermin, while not harming the other creatures (including us) of the garden.

a menagerie of aphids

I was spurred to try some of these other methods two springs ago, when I realized that my city garden had become an aphid menagerie. There were little red ones on the roses, green ones on the petunias, gray ones on the honeysuckle, and black ones on the nasturtiums. Although I didn't yet have the fat yellow ones, which I consider the most loathsome of all, I wasn't about to sit around and wait for them to join the party. My experience with soap sprays had

continued



photos by Ann F. Rhoads



Japanese beetle

they will keep in a dormant state for about a week. The ladybugs are scattered amongst the plants in the evening (they won't fly away at night) after sprinkling the leaves with water (for the ladybugs to drink). I released my ladybugs in groups over a period of several days, and soon began to notice a lessening of the aphid population. Unfortunately, many of the ladybugs didn't hang around for very long, preferring, it seemed, to eat and run. In a less harsh environment and especially a larger garden, I feel they would be more permanent residents.

This past spring, while trying to attain longer-lasting control, I decided to supplement the ladybugs with lacewings and praying mantises. Both are supplied in egg form, which makes them easy to store and apply. The lacewing eggs hatched into wingless (meaning they stay put) larvae, which I saw zipping around on leaves and stems as they hunted for aphids. The praying mantises worked out the best for me, starting out as tiny aphid predators in the spring, then growing and moving on to bigger food as summer wore on and the heat largely kept the aphids in check. Even when nearly full-grown, the mantises were remarkable homebodies, remaining in territories as small as half-barrel container shown them to be about as effective at killing plants as pests, so one day I decided to order some ladybugs. These are sold by several companies in California—the one I use is Unique Insect Control* in Sacramento—and come ready-to-use in a little sack. Or, with a few drops of water and a

*Unique Insect Control
P.O. Box 15376
Sacramento, CA 95851



Syrphid fly larva consumes aphids

spot in the refrigerator (don't forget to inform the other members of the household), gardens.

With the aphids now reduced to "acceptable" levels (more about this idea later), I still had another major pest problem: caterpillars — cabbage worms, I think

Although horticultural practice routinely has us simulating the light conditions, moisture, and soil chemistry of our favorite plants' natural environments, we usually ignore their biological surroundings — the other organisms that they interact with and depend upon for survival. It's this "biological vacuum" that we are then compelled to fill with drastic chemical intervention when things start to go wrong.

— that were feasting on the flowers and buds of my petunias and geraniums. The solution: *Bacillus thuringiensis* (B.T. for short), a species of bacteria that gives caterpillars a fatal bellyache while having no known effect on other forms of life. Available under the trade name Dipel, the microbe-containing powder is simply mixed with water and sprayed on the affected plant parts. It works amazingly. I repeat spray several days apart to take care of newly hatching eggs, and if necessary spray again whenever I notice the worms.

For those with pond or bog gardens (or a sluggish roadside ditch), there is a variety of B.T. that works as well on mosquito larvae. It's sold as Mosquito Attack. Research is constantly uncovering new beneficial organisms, specific to other pests, and they are becoming more readily available. Milky spore disease to control Japanese beetle grubs and fly parasites (a harmless kind of wasp) are just two examples.

As the army of beneficial insects and bacteria silently kept watch over my garden this past summer, I was encouraged to view it as a system struggling to be self-maintaining, a kind of world-in-miniature. Although horticultural practice routinely has us simulating the light conditions, moisture, and soil chemistry of our favorite plants' natural environments, we usually ignore their biological surroundings — the other organisms that they interact with and depend upon for survival. It's this "biological vacuum" that we are then compelled to fill with drastic chemical intervention when things start to go wrong. Once we realize that the living environment is as important to the plants as the physical one, we can come closer to providing the best conditions for their growth, with the least work. But this approach does require some departure from conventional thinking.

Perhaps the hardest "new" idea for me to accept was the fact that in nature, no population of organisms is ever completely



Tomato hornworm fatally parasitized.



Parasitized aphid (also called an aphid mummy).



The orange mite doesn't feed on plants; it preys on the two spotted mite, which does feed on plants.

free of its parasites or predators. Instead, the parasites usually exist in a balance with their hosts, at a level where no serious damage is done. In terms of the garden, this means that my petunias can easily put up with a few aphids, as long as their numbers are kept at an "acceptable" level. As in nature, beneficial organisms can do this in the garden, but they may have to be brought in at first, and conditions must be to their liking. Most important for the beneficials' survival, the garden must be kept poison-free.

Another aspect of the life of the garden that's easy to overlook, is that which exists out-of-sight beneath the ground. Many kinds of bacteria and fungi cooperate with plant roots, helping to manufacture and feed them nutrients from the soil. These essential microbes are nourished by applications of organic matter such as composts, but are shocked or killed by chemical fertilizers and pesticides. Scientific evidence is accumulating that plants growing in a rich, alive organic soil are the most resistant to harmful insects and diseases. This really isn't such a wild idea, since we know on a more familiar level that our own bodies are better able to fight off sickness when they're well taken care of.

All of these thoughts are leading me to

become much more of an observer, a listener, in the garden. The idea of viewing the garden holistically, with all of its parts depending on one another, and ultimately self-sustaining, is very exciting. One of the most fascinating experiences I had gardening last summer came as I was making my daily rounds amongst the rose bushes. In the midst of my annoyed amazement at how fast the aphids were multiplying, I caught sight of a tiny wasp. It was landing on one aphid after another, carefully "stinging" each one. The wasp was most likely a female *Trichogramma*, laying its eggs inside the aphids that would now serve as food for its young. Although these harmless-to-people wasps are available commercially, I had never introduced them into the garden — this one had come on its own. The garden as a self-contained ecosystem was working, even in the city.

The use of biological controls in the garden not only gives safe and effective pest management, but also leads to the peace and satisfaction of knowing you are working with nature rather than against it. The gardener in effect becomes part of the garden rather than only its overseer, changing and learning and growing along with it. One experience best illustrates this progression for me. One morning I noticed

a brightly-colored bug I had never seen before sitting on a lily leaf. My first impulse — the old way of thinking — was to squash the intruder, certainly up to no good. Then I paused and realized there was just as much of a chance that this new resident was beneficial to the plants, better wait. Finally, I looked closely at the insect, bright red and yellow and amazingly intricate in structure. It then dawned on me that this multicolored bug was, in its own way, as beautiful as any flower in the garden. Though I doubt I could conjure up such fondness for a hulking tomato hornworm, I felt good that I had come to the point where I could leave this mystery creature alone; even enjoy its presence. But there better not be any holes in those lily leaves tomorrow.

John Cozza lives in West Philadelphia and is the gardener of Eden restaurant. He is particularly interested in experimenting with unusual varieties of ornamentals.

Other Biological Pest Controls

What other benign tactics do you, our readers, use to control pests? How effective are your controls. Share your ideas. Send to: Editor, Green Scene, 325 Walnut Street, Philadelphia, PA 19106.

GREEN & GOLD

Chrysogonum virginianum

 by Claire Sawyers

In early June, after I led knowledgeable members of a garden club through the wildflower gardens at Mt. Cuba, Pamela Copeland's estate in Greenville, Delaware, one member of the group offered her thoughts on what impressed her the most. Of the scores of plants she'd been introduced to, the ground hugging green-and-gold *Chrysogonum virginianum australe*, won her enthusiastic praise. This plant has an irresistible, cheerful personality. Many gardeners are still unfamiliar with green-and-gold, but when they see it the first time they usually want it for their own garden.

Green-and-gold displays solitary bright golden stars, each with five showy rays and typically measuring about an inch across. While the flower heads of *Chrysogonum* resemble other daisy family members, they are uniquely close to the ground and accented by a mat of dark green leaves, which reach three inches in length and are about half that in width. The plant spreads by creeping stolons, rarely exceeding four to five inches above the ground. The flower heads seem to glow against the dull green, hairy foliage aptly described by its other common name "golden-star." Green-and-gold blooms heaviest in May and June flowering sporadically through the summer into September and October or even later depending on the weather. Flowers do appear as early as the second week of April in the Delaware Valley. During the comparatively short spells when it is just green, it requires no apologies. Its low and dense creeping habit and nearly evergreen leaves make it an attractive groundcover at those times. There is only the one species of *Chrysogonum*, so learning to identify it is easy, unlike the rafts of goldenrods and asters in the same family.

Another good attribute of this plant is that it takes shade or sun. At Mt. Cuba green-and-gold has been planted at vari-



photos by Claire Sawyers

Green and gold at Mt. Cuba

ous spots in the woodland gardens where it performs admirably under the dappled and sometimes dense shade cast by tulip-trees. It forms an attractive, naturalistic low edge to paths in some areas and in others it ties together a variety of taller wildflowers much the way an area rug unites a cluster of furniture. It thrives in exposed, rocky outcroppings and on steep slopes with equal charm, making it a popular plant with rock gardeners. Grown in full sun in the nursery at Mt. Cuba in fairly typical garden soil, it has also increased in size rapidly. In the shadiest locations, there is less bloom later in the summer, so given a variety of situations to work with, site it where it will get some bright light.

Avoid planting *Chrysogonum* in poorly drained, wet soils. An American native, this plant reportedly naturally grows in sandy

and rocky woods from Pennsylvania to Florida and west to Alabama. Dry sites and dry spells don't seem to hurt it but soggy soil or over-watering it will rot and kill it. At Mt. Cuba we lost some plants in a heavily shaded area after frequent sprinkling.

Chrysogonum is hardy through USDA Zone 5, so it is well suited to the Delaware Valley. I have also seen it thriving in various Connecticut gardens, in spite of the New England winters.

As with many of our native plants, which are just now being widely appreciated and grown by gardeners, there are few selected varieties (cultivars) of *Chrysogonum*. Yet it exhibits considerable variation in growth and flowering habits. The low creeping habit, as described above, has been distinguished by botanists as the variety *australe*. Although nurseries fre-



May bloom in Redfields, Connecticut.

quently sell this low growing, stoloniferous type, some do not list it by the variety name, so read the catalog description. Otherwise you may receive plants that form bushy mounds eight to twelve inches tall. The hairy, purplish stems of these plants stand upright instead of creeping outward. Such plants are attractive but they don't function as a groundcover like the variety *australe* does.

Chrysogonum is easy to divide and spread around the garden once you establish the plant. Clumps divided in late summer at Mt. Cuba and planted at about six inch intervals continued to grow and spread into the fall. By the following summer the planting had filled in and already looked settled. Weed until the planting becomes dense and thick. Fertilization is discouraged by some who say it causes leggy stem growth.

Unlike the expansive wildflower garden at Mt. Cuba, my own garden is a cramped urban plot. For a plant to be given some of the precious space there it has to be a "really good plant." *Chrysogonum* qualifies. Several patches of it soften the edge of the flagstone patio under a canopy of a dogwood. There I admire golden stars on many summer evenings.

Mail order sources of green-and-gold:

Eco Gardens
P.O. Box 1227
Decatur, GA 30031

Andre Viette Farm and Nursery
Rt. 1, Box 16
Fishersville, VA 22939

This nursery offers two named cultivars: 'Allen Bush' and 'Mark Viette.'


Woodlanders
1128 Colleton Avenue
Aiken, SC 29801

Claire Sawyers is administrative assistant to Richard Lighty, director of Mt. Cuba Center. She holds masters degrees from Purdue University and the University of Delaware, where she was a Longwood Fellow. Claire Sawyers served as Guest Editor for Brooklyn Botanic Gardens Handbooks *Japanese Gardens* and *The Traveler's Guide to American Gardens*; she is currently Guest Editor for their *Gardening With Flowers*.



SIX EXCEPTIONAL PLANTS

Awarded the Pennsylvania Horticultural Society's Styer Award of Garden Merit

 by Judith Zuk and Sally Reath

Ten years and more than 60 plants later, 16 evaluators have awarded six outstanding new or little-known woody ornamental plants the Pennsylvania Horticultural Society's Styer Award of Garden Merit. They are: *Hedera helix* 'Buttercup,' *Ilex* 'Sparkleberry,' *Itea virginica* 'Henry's Garnet,' *Magnolia* 'Elizabeth,' *Prunus* 'Okame' and *Zelkova serrata* 'Green Vase.'

How these six plants came to be chosen

Nursery owner J. Franklin Styer had always believed plants should receive the kind of recognition given to people in the horticultural field. Styer felt that many superior plants were languishing from want of recognition and that people should know there were plants available that were really good. In 1978 he made an initial grant of \$15,000 to the Society to develop an award program. A committee was formed, charged with identifying these plants, then educating the trade and public about them. Ernesta Ballard, then president of the Society, asked Jane Pepper then secretary to the Haverford College Campus Arboretum to head the Styer Award Committee. It was Pepper's first assignment for PHS and she was determined that J. Franklin Styer's idea would become a reality. The horticulturists and landscape designers who were invited to be evaluators shared her determination.

The first order of business was to identify those underused garden gems. We sent out a call all over the country to about 400 arboreturns, botanical gardens, nurseries, landscape designers and home growers to submit entries of plants hardy in the mid-Atlantic States that were:

- species or cultivars not currently widely used for ornamental purposes;
- new plants resulting from selection or breeding;

- plants newly introduced to the area from other parts of the U.S. or from abroad.

Applications arrived. After review by the committee, the most promising candidates were selected for Certificates of Preliminary Commendation and the evaluators received plants for evaluation in their gardens, nurseries and test plots. The evaluators coddled, coaxed, and measured them, and each January they met at the Society to discuss each one from tip to root. With 16 opinionated plant lovers around the table the discussions were lively and consensus slow.

The years went by and the testing and discussions continued. Jane Pepper was succeeded as head of the Styer Award Committee by Richard W. Lighty, then coordinator of the Longwood Graduate Program at the University of Delaware.

This year the results of our testing and discussions come to fruition. In the final round of discussions, the criteria for picking the winners was that the plants be valuable additions to the home landscape — hardy, handsome and, where possible, easy to maintain.

Once consensus was reached on the first of the awards to be made from the many plants we have looked at over the years, the committee's next charge was to figure out some way to speed up the process, while maintaining the high standards set out under the original guidelines. To achieve this goal, we've changed the rules and no longer require that each plant be tested by several members of the evaluation committee, nor do we award Certificates of Preliminary Commendation. Instead we now request that three examples of each entry, landscape size, be in place at a botanical garden, arboretum or nursery located within 150 miles of Philadelphia in

the area extending from Washington, D.C., to New York City. This enables evaluators to examine entries growing in different environments and also, in many instances, the plants are more mature than any they could produce even in several years in their own test plots.

The other goal, outlined in the original committee proposal, is that we must educate and encourage suppliers and the home gardener about these plants. Through articles like this and news releases to other horticultural magazines, nursery trade bulletins and other publications, we hope to encourage gardeners to try the plants for themselves.

We're thrilled to see our decade of effort come to this conclusion and beginning. We look forward to telling you about more award winners each year in *Green Scene*. And we want to thank J. Franklin Styer for the initial grant, the two subsequent grants to the program, and his continued counsel. His vision is a welcome addition to the landscape.

Now, here's the information about the 1988 winners.

***Hedera helix* 'Buttercup'**

Evaluator Richard Lighty commended this plant as one for gardeners eager to introduce a touch of colored foliage into their gardens. New leaves are chartreuse, later turning butter-yellow. As they mature they turn dark green with prominent light-colored veins. The continuous production of new leaves provides a variety of foliage colors throughout the growing season.

At Brookside Gardens (Wheaton, Maryland) evaluator Philip Normandy has watched these plants develop successfully as a groundcover under the high shade of pine trees. Lighty trained his to a



Hedera helix 'Buttercup'



wall in full sun, where he prunes it heavily to encourage colorful new growth. The more shade it's in, however, he says, the less colorful the foliage.

Foliage size, growth rate and habit are similar to other green cultivars of English Ivy, and 'Buttercup' propagates easily from softwood cuttings during the growing season. According to Lighty, this plant is reliably hardy to Zone 6, and may also do well in sheltered locations in Zone 5.

***Ilex serrata* x *I. verticillata* 'Sparkleberry'**

If your holly vocabulary is confined to evergreen varieties, then it's time to tune in to deciduous varieties, particularly those hybrids between a species of Asian origin, *Ilex serrata*, and *I. verticillata*, the winterberry of North America. Researchers have produced several good hybrids of them. The Styer evaluators selected 'Sparkleberry' for its superiority in fruit production and color.

Many of these hybrids are large multi-stemmed deciduous shrubs growing to a height of 12 ft. with similar spread. 'Sparkleberry' beauty lies in its striking display of winter berries. Flowering is heaviest in full sun and the brilliant red fruits look their best in bright winter sun. According to researchers at the National Arboretum, where the hybrid was developed, 'Sparkleberry' fruits will often last into March.

Like other hybrids of this parentage, 'Sparkleberry' is easy to grow and adaptable to dry, wet or poorly drained sites and to a wide range of soil types. Hardiness is rated as Zone 5, and it will look best if used in a mass planting.

Like all hollies, it's necessary to plant a pollinator nearby to ensure good fruiting, and the National Arboretum selected *I. 'Apollo'*, a sibling staminate seedling, as

continued



Ilex 'Sparkleberry'



*Itea virginica* 'Henry's Garnet'*Itea virginica* 'Henry's Garnet' in fall*Itea virginica* 'Henry's Garnet'

the preferred pollinator for this hybrid. 'Sparkleberry' can be pollinated and fertilized by either parental species and possibly by other deciduous species of *Ilex*, but the researchers observed that "random use of staminate plants of these species cannot be relied upon to overlap in flowering time of 'Sparkleberry.'" Plant one 'Apollo' per mass planting of 'Sparkleberry.'

Softwood cuttings, taken throughout the growing season, will root rapidly under mist. We're grateful to the Virginia Truck and Ornamentals Research Station (Virginia Beach, Va.) for submitting this plant for consideration for the Styer Award.

Itea virginica 'Henry's Garnet'

Donald Wyman, the late and greatly respected horticulturist at Harvard University's Arnold Arboretum, refers to *Itea virginica* in his 1971 edition of *Wyman's Gardening Encyclopedia* as "merely a pretty native that can add to the summer interest of a garden."

Staff members at the Scott Arboretum Swarthmore College, who introduced this cultivar of *Itea*, have other ideas about Virginia sweetspire and commend it as a tough, adaptable shrub that has many uses in the landscape. They are especially enthusiastic about this newly introduced cultivar.

Evaluator Darrel Apps writes "'Henry's Garnet' is one of the finest shrubs to come along in a long time. My observation is that it is slightly hardier than the species. I had die-back on *I. virginica* and not on 'Henry's

Garnet.'" Its white flowers (late June) are fragrant and twice as long as the species. The large planting in front of the old visitor center at Longwood Gardens (Kennett Square, Pa.) was a sight to behold last spring. The fall color of 'Henry's Garnet' is a wonderful red/purple and often holds well into the winter." The other good news is that this species propagates easily by softwood cuttings.

In its native habitat *Itea* is an understory shrub, so it will naturally do better in slightly cooler and moister sites, but the evaluators at Swarthmore say it also performs acceptably on dry sites.

'Henry's Garnet' is a vigorous grower. The 12-year-old plant at Swarthmore College, which has never been pruned, is 6 ft. high and 8 ft. wide. Evaluators report no serious pests and diseases.

Magnolia acuminata x *M. heptapeta* 'Elizabeth'

This tree with glamorous lemon chiffon yellow flowers, "is outstanding" writes evaluator Lighty "principally because it introduces a novel color in the magnolias with lily-like flowers."

Introduced by Kitchawan Research Station of the Brooklyn Botanic Garden (NY), 'Elizabeth' is hardy to Zones 5-9 and is a vigorous grower. In maturity it reaches 25-35 ft., with a spread of 10-15 ft. According to Lola Koerting at Kitchawan, 'Elizabeth' will develop best in slightly acid (up to 5.5 pH) soils, open space and full sun.

Lighty recommends it as a multi-purpose shade or specimen tree, but not one

for the smallest yards. He also notes that, unlike some magnolias, it flowers at a young age. Propagate by softwood cuttings under mist.

'Elizabeth' is a hybrid of *M. acuminata* and *M. heptapeta* and was patented by the Brooklyn Botanic Garden in 1977 (Plant Patent #4145).

Prunus incisa x *P. campanulata* 'Okame'

Spring would hardly be the same without the glories of the flowering cherries. Among the best is the 'Okame' cherry, which although hybridized in England early this century and brought to Philadelphia in 1946, is not widely planted in America. The Morris Arboretum of the University of Pennsylvania (Philadelphia) entered this plant for the Styer Award and highly recommends it as a cherry that will do well in many sites.

Hardy to Zone 5, 'Okame' produces an abundance of pink flowers in late March to mid-April, making it one of the earliest to flower. It reaches 25 ft. at maturity with a spread of 20 ft., so would be appropriate for relatively small gardens. A bonus is the bright orange and yellow fall foliage.

Like many cherries, 'Okame' lives 25-35 years, losing its vigor in later years; however, it develops rapidly in its early years and flowers the second year from cuttings.

Plant 'Okame' in full sun and, if you give it enough room from the start, there's little need to prune, except right at the beginning to shape it. As for cultural problems, Rick Lewandowski, Morris Arboretum curator of Plant Propagation, reports minor

continued

photo by Larry Albee



Magnolia 'Elizabeth'

photo by Rick Darke



photo by Walter Holt



Prunus 'Okame'

photo by Walter Holt



Zelkova serrata 'Green Vase'

Japanese beetle and spider mite damage.

'Okame' cherry roots readily from softwood cuttings under mist taken mid- to late June. At the Morris Arboretum, 95% of the cuttings rooted within four weeks using this method.

***Zelkova serrata* 'Green Vase'**

The cultivar 'Green Vase,' introduced by Princeton Nurseries (Princeton, NJ), originated from a batch of Korean seeds sent to William H. Flemer, III, Princeton president, from the Institute of Forest Genetics in South Korea. As a seedling, 'Green Vase' grew twice as fast as sibling seedlings in the same and adjacent rows. Today the original tree, 18 years old, is over 40 ft. high, with a spread of 25 to 30 ft. At maturity Flemer expects it will reach 70-80 ft. with a 40-50 ft. spread.

Flemer commends 'Green Vase' as being hardier than the Japanese *Zelkova* and suggests it for parks and home gardens in Zone 5 and further south. He notes that it holds up well against airborne pollutants and drought, and adapts to heavy clay soils, which makes it a candidate for planting in cities. Its upright habit enhances its appeal as a street tree, but it does not prosper in sandy soils. A street tree planting in Swarthmore, while quite young, has shown the rapid growth and neat habit of

this plant.

Princeton Nurseries recommends spring planting for 'Green Vase,' and they also caution gardeners to expect some foliage damage by Japanese beetles and elm leaf beetle. 'Green Vase' was awarded Plant Patent #5,080 in 1983.

Where to Buy Styer Award Plants

Wholesale and retail nurseries walk the delicate tightrope between supply and demand. Their situation is complicated by the long lead-time needed to produce plants large enough to attract demand in the retail nursery.

As part of the Styer Awards program, the Society has been contacting nurseries and garden centers in the areas covered by *Green Scene* to let them know about these plants.

We hope you will be able to find these plants in your garden centers. If you don't, please ask for them and let the person who helps you know about the Styer Award program. If a retail operation would like our list of **wholesale** sources for these plants please call the Society's Horticultural Hotline (215-922-8043 — Monday through Friday, between 9:30 and noon, January through November), or send your request with a stamped, self-addressed, business-size envelope to Styer Award, Pennsylvania Horticultural Society, 325 Walnut Street, Philadelphia, Pa. 19106.

We cannot provide lists of retail sources.

Evaluators

Judith W. Zuk, Chair
Darrel Apps
James E. Cross
Tom Dilatush
William H. Frederick, Jr.
Richard Hesselein
William Heyser
Steve Hutton
Rick Lewandowski
Richard W. Lighty
Paul Meyer
Philip Normandy
Sally Reath
Bradshaw Snipes
J. Franklin Styer
Charles Zafonte

HOW TO ENTER A PLANT FOR THE STYER AWARD

We invite you to let PHS know about plants that merit consideration for a Styer Award. For brochures and entry forms call the Society at 215-625-8250.

Briefly, the schedule for the program is as follows:


December 1st (of each year)	Deadline for entrants to submit suggestions with entry form and slides (3-5) to The Pennsylvania Horticultural Society.
January	Evaluators review entries and select plants for further evaluation in the field during the upcoming months.
Summer	Evaluators meet to make final award selections. Winners are announced in <i>Green Scene</i> at the beginning of the following year.

When recommending plants for the Styer Award, please remember the following specifications:

- for each entry, a minimum of three landscape-size plants must be accessible to evaluators in a botanical garden, arboretum or nursery located within 150 miles of Philadelphia, in the area extending from Washington, DC to New York City and,
- that a program of propagation and distribution should be underway for all entries to ensure that plants are available so growers, retailers and mail order sources can obtain stock for distribution.

Judith Zuk is director of the Scott Arboretum, Swarthmore College; Sally Reath has been a Styer evaluator since the program started and has grown many of the plants in her Devon, Pa. garden.

VERTICAL INTEGRATION: *A New Twist on Cash Crops*

 by Libby Goldstein

No, this time vertical integration does not refer to growing things up into the garden's air space. It's about a community and economic development process. Vertical integration means using the product of one stage of your activity as the raw material for the next stages. Here, it's about a group of gardeners in West Kensington who decided to start a market garden and found it would be more profitable to grow the herbs and vegetables used in *sofrito*, a Puerto Rican cooking sauce, and to process and sell the sauce than to sell the vegetables and herbs themselves.

"Profitable" is not really the right word. All the proceeds of the gardeners' efforts go back to their Norris Square Neighborhood Food System, to the participating gardens, food cupboards, soup kitchens. Still the most sophisticated agricultural economists are recommending that small farmers and growers' cooperatives begin thinking about doing their own processing, marketing and distribution so that they can stay profitable and stay in farming. And

Philadelphia has its very own tiny model at Front and Cumberland.

It all started in 1983 or 1984 when the directors of Food and Energy Systems, Inc. began thinking about what kinds of neighborhood projects might be an interesting follow-up to our community Fish Farm and Community Canning projects. Probably because our Board members are involved in everything from the seed trade and commercial composting to community gardening and programs to end hunger, FES began developing a proposal to bring together gardeners, nonprofit food providers and food related business people in one or more neighborhoods.

We knew of no such neighborhood-based projects anywhere else. We knew that often gardeners from one community garden do not know other community gardeners in the area much less the volunteers who run the local food cupboards and soup kitchens. We had no idea whether anyone would be inclined to spend time talking about and planning food-related activities

continued



photos by Mary Pat Kane

Sofrito, a pepper and herb sauce, can be used in almost everything but dessert.



(Left) Sixta Paz (holding yellow flower), Dionysia Muñoz (blue blouse), and Kristin Dawkins joined by other recruits, put the finishing touches to a batch of sofrito.

photos by Mary Pat Kane



Sixta Paz, Kristin Dawkins, and Angel Ortiz ham it up at the finca.

and projects in the neighborhood. In short, it was just our kind of project: try it. See if it works, and if it does, let the people with the staff and money pick it up and spread it around.

Indeed, the thinking went, if nothing else, at least the gardeners may give the food providers some surplus vegetables to feed hungry and homeless people in the neighborhood once they get to know one another.

With a small grant from the Knollbrook Trust, Kristin Dawkins began meeting with Norris Square gardeners like Angel Ortiz, Sixta Paz, Dionysia Muñoz, Rita Rivera, Tomasita Romero and Valentina Rios and with Harry Bergbauer of St. Francis Inn, Carmen Aponte of the Norris Square Senior Center and people from Anthony House, St. Boniface Church and Norris Square Neighborhood Project among others. There were meetings and Harvest Parties and meetings and workshops and more meetings and trips: to Fairmount Park for Penn State's Urban Gardening Program's Winter Workshops and to the Recycling Center. As Kristin says, "A van provides a great setting to develop a sense of group spirit." And by the end of the first season the gardeners had contributed 300 pounds of fresh produce to St. Francis Inn, Anthony House and several emergency food cupboards.

The donations of excess food were not

all one way. Anthony House had received hundreds of frozen wild ducklings from an environmental project. They gladly shared that wealth, and the Harvest Festivals in Cabot and Norris Square both featured duck, prepared in every conceivable fashion.

Throughout the winter and spring of 1986, Kristin, Norris Square Neighborhood Food System members, the FES Board and

Should we grow things to sell in the neighborhood or should we be looking towards Center City restaurants and greengrocers?

Penn State Coperative Extension staff discussed the idea of starting a market garden. Should we grow things to sell in the neighborhood or should we be looking towards Center City restaurants and greengrocers? How would we handle any proceeds? How should the garden, by now called the *finca*, "farm" in Spanish, be laid out? Could we also use it as a place where neighborhood gardeners might pick up spent mushroom compost for their home and community gardens?

By July, construction of the *finca* was well underway when someone stole some fence posts right out of the wet cement. Harry Bergbauer found out who had taken them. He went to the person and, pretending that the thief was someone else, explained what the *finca* was all about. The fence posts reappeared later that night.

The first crops: lettuce, *cilantrillo* (*Coriandrum sativum*) and 50 donated broccoli seedlings were planted — the lettuce and *cilantrillo* in weekly succession to develop an ongoing supply for a regular market. The lettuce and *cilantrillo* sold well, mostly to neighborhood residents; although Don Ernesto (sometimes known as Don Lechuga, Mr. Lettuce), an active member who sells produce from his own garden, bought a substantial amount "wholesale" for resale at his stand. The broccoli became part of the 1,800 pounds of produce that the gardeners donated to our "distributing" members. (It was not a big seller as this is not a typical food in the Puerto Rican community.)

It was about this time that people started thinking about *sofrito*. *Cilantrillo* grows very well in Philadelphia. So do garlic and onions. With an early start one can grow both green peppers and the tiny *aji dulce*, scotch bonnet pepper. Some of the other ingredients like *recao* (*Eryngium foetida*)

and Puerto Rican oregano (*Lippia micromera* and *Plectranthus amboinicus*) have to be over-wintered indoors or purchased from dealers in tropical foods.

In any case, the garlic, a special selection, was planted in November. Some of the *cilantrillo* self-seeded and was ready for sale in early April. By the end of May, a second planting of *cilantrillo* was made and a 400 square foot bed produced three 18-pound cases of bunched *cilantrillo*. One grocery store bought a case, but all the others had just bought theirs from a New Jersey grower. The neighbors bought some, but it was the end of the month. They were short on cash.

Tomasita Romero then suggested that even if some of the ingredients had to be bought, the last case of *cilantrillo* could be the beginning of the great *sofrito* project. So, Doña Tomasita, Sixta Paz and Dionysia Muñoz made 50 pints of *sofrito* one night and 19 pints later in the week. By the end of June 1987, net sales of *cilantrillo* and *sofrito* had reached \$108.00 and the garden sported a large sign:

Vendemos los productos
de
Nuestras Fincas Boricas
(We sell the products of our Puerto Rican Farms.)

But the program is really about more than the *finca* and the part-time employment it provides for one of the elders in the community, and it's about more than the *sofrito* project and vertical integration. It is also about one of the member's writing in English for the first time ever. It's about Don Ramon Suarez sending for Kristin and Doña Tomasita Romero last winter when he was so sick that he thought he wouldn't be able to work his large and beautiful garden again. He wanted to give it to the project so it would continue to grow. (Don Ramon recovered with the spring. He and his garden flourish for yet another season.) It is about community and pride and, I think, love, too.

If you are thinking about selling cooked, preserved or baked goods from your *finca*, make sure to check with your county health department and county extension agent about regulations concerning preparation and sales.

Libby Goldstein is a director of Food and Energy Systems. She is a frequent contributor to *Green Scene*. She has written a gardening column for the *Daily News* for 10 years, and has contributed articles to *Organic Gardening*.



Lettuce beds — PVC pipe support, bird net in warm weather— plastic early and late in the season.



Don Ramon Suarez who came back to life with the spring.



An apple basket composed of Golden Curls willow and Westonbirt dogwood.

Plants for Natural Baskets

by Arthur O. Tucker and Sharon S. Tucker

We grow basket materials and make baskets *au naturel*. No, we do not plant and plait in the nude. Rather, we leave the bark on our basket materials when we weave; we retain all the subtle imperfections, blemishes, and scars of the branches. Even the tendrils stay on the vines and while the final product is often more artistic than utilitarian, what modern household really needs a functional potato basket?

We were able to locate abundant grape vines, honeysuckle, Virginia creeper, apple, and cattails along the roads. We wanted, however, to inject unusual colors and textures from plants to create a unique artistic expression.

osier cultivation

As we investigated novel plant material for our baskets, we realized that we were building upon a very ancient history. Therefore we looked to the past for data on species, cultivation and pruning practices. The European velvet willow, *Salix viminalis*, was cultivated so often in the past for basketry that it became known as **the** basket willow or osier (French, from Latin, *ausaria*, a bed of willows). Often willows were culti-

vated in a special wet bed (osier), a wet place (osier holt), or sometimes on an island (osier ait). European species of willow deemed especially important to be called osiers include *S. alba* (white willow), *S. caprea* (goat willow), *S. fragilis* (crack willow), *S. pentandra* (bay willow), *S. purpurea* (purple willow), and *S. triandra* (almond willow).

At one time in the United States, osiers were sufficiently important to warrant four major publications on osier cultivation from the United States Department of Agriculture from 1898 to 1914. Osiers were extensively cultivated not only for baskets and furniture (wickerwork) but also for wattles (fences and roofs). Osiers were also considered good for soil retention along streams and rivers. As a result, cultivars, such as the 'Patent Lemley' selection of the almond willow, were developed in the United States and promoted by the USDA.

pruning

At least two pruning practices are routinely performed on osiers. The leading method is pollarding. A pollarded tree has all the branches cut back to the main trunk.

The weeping mulberry (*Morus alba* 'Pendula') and dwarf catalpa (*Catalpa bignonioides* 'Nana') were routinely grafted upon upright trunks in Victorian times and annually pollarded. Another pruning practice is coppicing. A coppiced plant is annually pruned to within a few inches of the ground. Both pollarding and coppicing produce the maximum number of long, thin, limber branches. In the case of colored branches, these pruning practices also produce the brightest colors. Coppiced plants, however, seem to have a shorter lifetime than pollarded plants.

Whatever the choice of pruning, the materials must be used fresh for basket weaving. If you must store them, wrap them up in a large plastic bag with some wet newspapers and put them in the cool garage, refrigerator, or even the freezer. Some prunings, such as bittersweet, will not store well, while others, such as the dogwoods, store for several weeks.

materials for natural baskets

The most commonly available plant materials for baskets are brown. Besides the willows mentioned above, one of our main-

stays is Fruitland autumn olive (*Elaeagnus* 'Fruitlandii'). While often listed as a cultivar of *E. pungens*, this seems to be a selection of *E. x ebbingei* (*E. macrophylla* x *E. pungens*). Even without pruning, Fruitland autumn olive produces a large number of long, thick, straight branches that are perfect for the ribs and rims of baskets. Unfortunately, Fruitland autumn olive is marginally hardy north of Zone 7. Another mainstay for framing are branches of fruit trees, especially apple and pear.

For the bodies of the baskets, shoots of weeping willow (*S. babylonica*) are especially pliant. Bittersweet is also pliant and really benefits from an annual pruning. We particularly favor the American bittersweet (*Celastrus scandens*) because it is being gradually eliminated from the rural landscape in favor of the more vigorous Oriental bittersweet (*C. orbiculatus*). Both bittersweets have the added benefit of attractive fall fruit. Wisterias (*Wisteria* spp.) also benefit from liberal pruning and supply excellent basket materials. The prunings of grape (*Vitis* spp.) from the orchard, and an occasional downed birch (especially cultivars of the European white birch, *B. pendula*) are very useful materials. Japanese honeysuckle (*Lonicera japonica*) and Virginia creeper (*Parthenocissus quinquefolia*) from the roadsides round out the brown end of the palette.

Red basket materials are best supplied by the red dogwoods. We have purchased plants of *Cornus alba* 'Sibirica' (Westonbirt dogwood), *C. sericea*, and *C. sericea* f. *Baileyi* and found all to be identical. Either

continued



These baskets have an affinity with the seashore and forest. The three baskets to the rear are woven of Westonbirt dogwood, Golden Curls willow, yucca, and American bittersweet. The brown basket in the front is woven of apple, Virginia creeper, wild grape, cattail, and golden willow.



A flower basket composed of bittersweet, Golden Curls willow, Westonbirt dogwood, and cattail.



A large herb basket composed of driftwood, Japanese honeysuckle, Fruitland autumn olive, and porcelain berry (*Ampelopsis brevipedunculata*); an apple basket composed of Golden Curls willow and Westonbirt dogwood.

the nurseries have confused the issue or else this group is in need of nomenclatural work. The silky dogwood (*C. amomum*) also supplies blood-red shoots but is not as brilliant. The red willow (*S. alba chermesina*) supplies orange-red shoots. All these benefit from annual pruning.

For the yellow end of the basket palette, we are especially fond of the 'Golden Curls' willow, a suspected hybrid of the cork-screw willow (*S. matsudana* 'Tortuosa') and the golden weeping willow (*S. alba* 'Tristis'). This willow is small enough for a residential planting (unlike its golden weeping parent) and yet supplies abundant materials for baskets. Another favored golden subject is the yellow dogwood (*C. sericea* 'Aurea,' also sold as 'Flaviramea' or 'Lutea').

Green materials from our garden include the yuccas (*Yucca* spp.), while cat-tails (*Typha* spp.) from the roadside also

supply the same contrast of texture and color.

use your prunings

We can remember that prunings were routinely burned when we were children, and often the branches were saved to burn with the autumn leaves. We still remember the taste of slightly charred potatoes and corn-on-the-cob that were wrapped in foil and cooked in the ashes. Now, with the enactment of laws that prohibit open burning and the increase in population, burning is no longer practical in many areas. As an alternative to burning, we used to rent a shredder-chipper to turn our refuse into mulch. Now the mulch must compete with the baskets for our prunings.

Sources:

Some of our living basket materials, such

as 'Golden Curls' willow and Westonbirt dogwood, may be purchased from the following companies:


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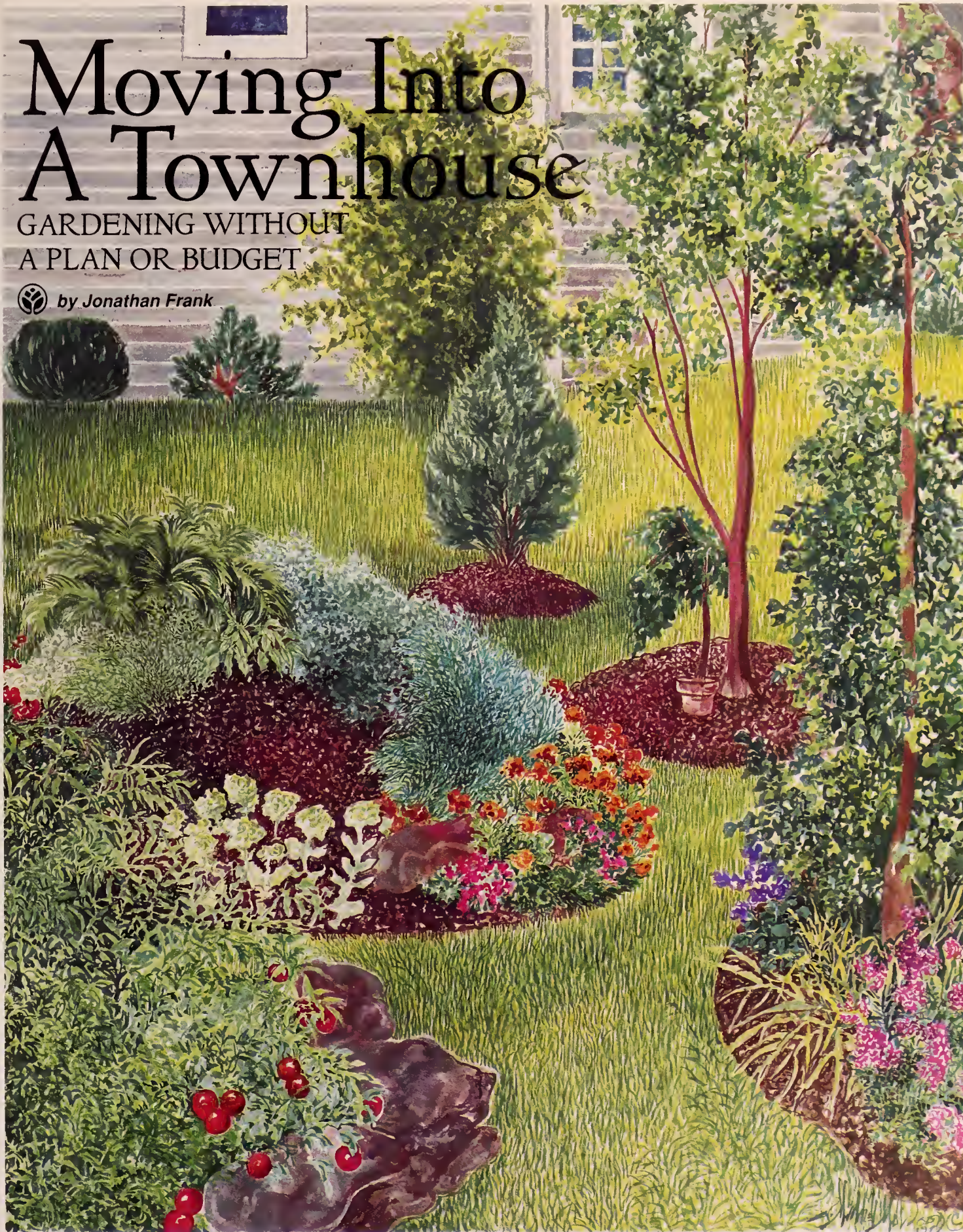
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Arthur O. Tucker is a research associate professor and co-curator of the Claude E. Phillips Herbarium in the Department of Agriculture and Natural Resources at Delaware State College in Dover. He has contributed articles on antique plants and stepping stones to past issues of *Green Scene*. Sharon S. Tucker is instructor in the Parallel Program, University of Delaware, Dover and has started making baskets under the name "Backyard Baskets."

Moving Into A Townhouse

GARDENING WITHOUT
A PLAN OR BUDGET

 by Jonathan Frank



After two seasons the townhouse garden comes alive with raised beds for an herb garden, annuals, and one for vegetables. The base of the clump birch is encircled by liatris, ornamental grasses and loosestrife. A bougainvillea is shaded by a linden and to the left is arborvitae. The house in the background is the neighbor's.

Moving Into A Townhouse

Unpacked cartons were stacked precariously, five high in the garage. Our spare room warehoused all the things not yet assigned to a permanent place. Windows were without shades or curtains. We had only been in our new home three days. But more important to me than unpacking or privacy was the garden. It was June 4th, and no seedlings grew there; no seeds sprouted; no annuals to transplant nor bounties of tomatoes to look forward to in July. Nothing; not a plant, bush, tree, not even a plan for a garden. Still, I mused, it was only our third day in the house, and we still had the rest of the growing season.

Day four: I started the garden. Never mind that we had no plan, materials, or budget. We did, however, have a huge supply of soil and rocks nearby, and ideas were emerging. I began by hauling 20 wheelbarrow loads of soil from a pile dumped nearby. Loads of rock were piled next to the soil. I moved some of those, too. Several hours later the first stone raised bed was completed. I stood back and imagined future harvests. The raised bed would be my herb garden: chives and oregano for the tomatoes, and basil, too. I worked until dark amending the heavy clay soil with dehydrated cow manure, peat moss, and rotted leaves gathered from the

field across the street. Sleep came easy that night.

It rained the next day, and my wife, Debbie, hoped that I might unpack some of the cartons still in the garage. When she saw me don my raincoat, she knew the cartons would remain unpacked a while longer. Almost instinctively I grabbed the wheelbarrow and began scavenging rocks in the rain. It seemed the best rocks were at the end of the two acre tract; but I was determined, and collected and hauled load after load. It rained harder as the day wore on, and I began to observe runoff water moving in the drainage swail next to my piles of rock. Why not build the next raised bed alongside the drainage swail? When it rained, the bed would absorb the runoff water like a giant sponge, and I wouldn't have to water so much. So, in the rain, next to the drainage swail with the runoff water swishing by, I began to construct my second raised bed. This one would be larger, and I would grow my vegetables in it.

Two months later, by early July, more and more homes were occupied. We had unpacked the last cartons. It was time to put up the curtains; privacy had become more of a priority. The garden was moving forward too. Seeds were germinating. The carrots needed thinning, and thyme was

blooming as it flowed over the rocks in the herb bed. New neighbors smiled politely as I talked to them about the harvests I expected that summer. They didn't know me yet. To them I was just the "guy who gathered rocks in the rain."

Next I began to landscape our still barren front yard. Apart from a newly installed sod lawn, our property was empty, flat and devoid of any character. I had many ideas, and conjured up countless designs. There was no end to the things I knew I could do. The reality was that I had no budget to work with. As luck would have it, though, I stumbled on a "Sale Area" in a local nursery. Sectioned off from the rest of the nursery it was an area of rummage plants and trees — defective material, marked down at or below cost. In minutes I pulled together all the material I needed at a cost I could afford. Some of my bargains were: mugo pines (18" containers), \$6.00; cotoneasters (5 gal.), \$4.50; red barberry (2 gal.), \$2.50; and a clump of birch for \$12.00. Our small station wagon overflowed. The hatch was open wide, and three feet of arborvitae hung beyond the bumper. Debbie juggled burning bush and junipers with red twig dogwood balanced between her feet. Neighbors just stared as we unloaded.

Some of my bargains needed immedi-



Close-up of herb bed: shown here are pansies, hardy sedums, fernleaf tansy, and oregano.

photos by Jonathan Frank

ate attention. The cranberry cotoneaster had a split main stem. A copper wire strand from old telephone wire, tightly coiled around the split solved the problem. I performed similar surgery on several other plants. Almost all of the plants were pruned hard and looked a little odd. I was uncertain whether some of them would even survive. The time had come though, the patients were ready to be planted. Color, varieties and textures were all carefully blended to create a living tapestry. I was especially careful placing the plants; I wanted them to be visible from inside my house as well as outside. I must have looked quite comical running in and out of the doors to check the view. After several hours the plants were in their proper places, and I was the first one in the neighborhood who could boast about "my yard."

Before long it was August, and we harvested the first tomatoes and basil. I felt such joy as we carried baskets of herbs and vegetables over to all our neighbors. The "guy who gathered rocks in the rain" really wasn't so crazy after all. The first harvest at our new house turned out to be abundant: eggplants, peppers, carrots, zucchini, beans, cucumbers, four varieties of tomatoes, strawberries, blueberries and blackberries all ended up on our dinner table. We had herbs for garnish, herbs for cooking, herbs for drying, and, on occasion, for drinks at happy hour. Second crops were sowed, and I built a third bed in which I started perennials. Gradually our neighbors stopped laughing and instead came over to get advice for their gardens. Our sunflowers topped 12 feet, and the oriental gourds were reaching maturity as they hung down between the sunflower stalks. Passion flowers covered one wall of the house; we counted 25 one day, followed by more the next.

September was the beginning of our third month in the house, and it seemed inconsequential that we had no plan or budget back in June. The garden and landscaping was evolving almost by itself. The raised beds built along the drainage swail benefited greatly from the runoff water, and we rescued more plants from the "sale section." Everything was working, and I was able to see clearly the potential that existed — even in a townhouse. Ideas and plans for next year were already racing through my head as we continued the harvests. Then, on September 27th, Hurricane Gloria struck. Runoff water in the swail looked like rapids and rose higher by the hour. By 9 am I could no longer see the top



Early summer and the garden begins to take form. Fernleaf tansy pictured in the herb bed was divided into a half dozen sections and replanted in other parts of the garden.



Rocks were scavenged and built into raised beds in the path of the drainage swail. Beds are 18 inches deep, 10 feet wide, 13 feet long. Soil was heavily amended and screened to remove rocks and debris. Water from main runoff moves through the swail system and is absorbed by beds, making them almost self-watering.

of the beds, and I became alarmed that the river of runoff would wash away all my work. The winds whipped my bargain plants too. The split stems on the cotoneaster pushed against the coiled wire; I could only hope the wires would hold. Gloria raged on: all I could do was watch.

In fact, all the "sale area" patients survived and thrived. The raised beds weathered the hurricane's fury and several snow storms too.

This past June marked our second year of townhouse gardening. Parsnips planted the previous spring were wintered over and harvested. They had been planted in the raised bed next to the swail. From a small row (about 10' long) we dug 30 pounds of parsnips; one specimen weighed nearly seven pounds. Peas were growing alongside the vacated parsnips and stood two feet high on the pea scrub branches I gathered from the field across the street.

Irises bought in the sale area framed our entranceway and complimented the blossoms on the rhododendron. My initial surgery had worked, and my three foot rhododendron that had cost \$8.50 became a beautiful bargain indeed. A sense of permanence permeated the garden. The scavenged and neatly assembled rocks were covered with herbs, and moss filled the crevices in between. I had added and changed many things over the last two years. Now I had a garden that was aesthetically pleasing as well as edible, and I was happy. One thing didn't change. I still buy plants in the sale area at the local nursery, and I suppose even now the neighbors still wonder; "Now what's that he's dragging home."

Jonathan Frank is Operations administrator in the Philadelphia Green program at PHS.

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Letters to the Editor

I eagerly anticipate the arrival of *Green Scene* and particularly enjoyed the November-December 1987 issue.

I was delighted to see "A Gardeners' Christmas" on page 24. It sounded so familiar, I went to my files and pulled out the copy enclosed.* It's nice to see it has made its way back to Philadelphia in about 25 years. (The poem was written by Charles and Janice Jensen.)

Seasons greetings to you all from all of us at Styer's Garden Center.

Sincerely yours,
Elizabeth L. Styer
(Mrs. John F. Styer, Jr.)

Thanks for identifying Anonymous.

The Editor

*STYER'S *Better Gardening*, Christmas 1964, Vol. 3 #5.

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A flower basket created from bittersweet, Westonbirt dogwood and cattail.
See: Plants for Natural Baskets,
page 26.

GREEN SCENE

THE MAGAZINE OF THE PENNSYLVANIA HORTICULTURAL SOCIETY • MARCH / APRIL 1988 • \$1.50



Getting a perspective
on Meadowbrook
Farm. See page 4



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Front Cover: The stone and iron belvedere plays tricks with perspective when viewed from various sides. This particular view shows that the five stone columns can line up so that they appear to be off-center. Although this is a geometric trick of the eye it tends to throw the visual balance off. When viewed from a right angle to this location the domed roof appears to be supported by four evenly spaced stone columns.

photo by John C. Gouker

Back Cover:

photo by Deborah A. Reich



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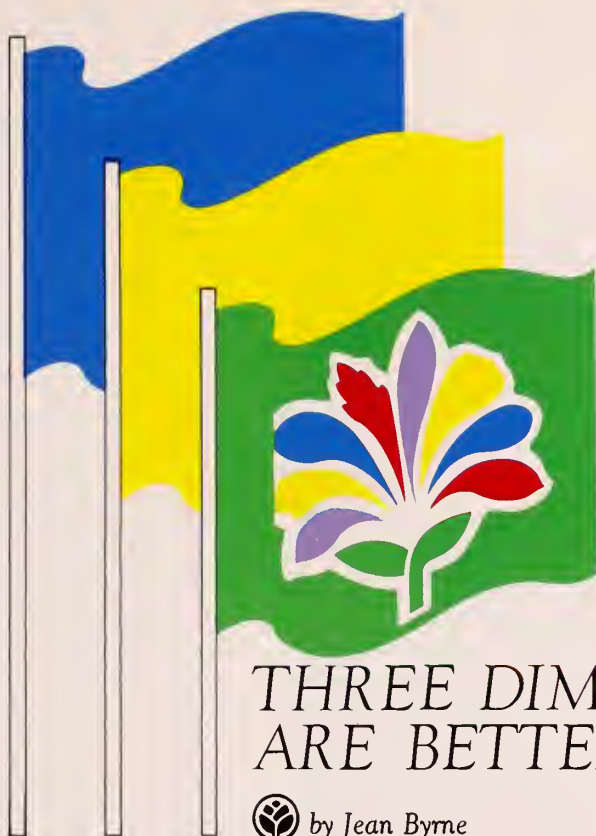
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THREE DIMENSIONS ARE BETTER THAN ONE

 by Jean Byrne

Life Magazine has long dined out on the philosophy that one photo equals a thousand words. We believe that's so, and we believe also, that the real thing speaks volumes. When it comes to plants, three dimensions are better than even the best photo. Gardeners want to see the real thing, and they are a visiting lot. That's why more than 230,000 people pour through the Philadelphia Flower Show, for example, and they don't hurry. You see them at the woodland and perennial gardens, under the hanging annuals and bowed at the rock gardens, their notebooks and pencils at the ready. And at the horticultural classes conversations around the bronze and blue ribbon winner range from awe to "Gee, my plant's that good. Maybe I ought to enter next year." In this issue you'll find a piece about some unusual plantings by a frequent exhibitor and blue ribbon winner in the Flower Show horticultural classes, Bill Delafield. We hope Bill will continue to share his skills with our readers.

Meadowbrook Farm, another Show exhibitor, has two faces out in Meadowbrook, Pa. — one public, where people come to browse and buy, and one private, which fortunately is occasionally open by appointment or on the annual PHS Members' evening. Ed Lindemann, the Philadelphia Flower Show designer, long a fan of Meadowbrook gardener and proprietor, Liddon Pennock, talked with Liddon about how he accomplished the beautiful effects in his garden. Liddon is an indefatigable host; we know he's guided innumerable visitors through those lovely and oft-published gardens, so we were delighted with the freshness and enthusiasm with which he led Ed and me through to share with us his impeccable standards, without a tinge of moralising. A great iconoclast himself, Liddon feels his example is there for the taking or can simply be disregarded. Yet, a visit to the public Meadowbrook, is a little like a visit to a gallery; you leave aesthetically affected by what you've seen there.

Throughout the year, too, there are other shows — plant society shows that tell us what the experts are doing, and sales that allow people to buy those hard to find seeds, seedlings or cuttings. That's why every March we list information about those shows. If your plant society isn't included on pages 30-31 send us information and we'll publish an addendum this year; or make a note to send us the information next January using the format included here.

MEADOWBROOK

photos by John C. Gouker



The garden is simply an extension of the house. This view from the door of the garden room across the terrace and into the door of the dining room shows how Pennock designs on axis. Openings reflect openings and areas balance each other in size. The inside links well with the outside, and you feel as though you are moving from room to room.

By today's standards the gardens at Meadowbrook Farm are elaborate, elegant and for the most part formal, and yet they are casually inviting. It is this unique combination of formality and comfort that continues to attract me each time I visit Meadowbrook Farm. As individual areas the series of 20 gardens are all quite small. Each of these small areas has been designed to work as a single unit in a multi-area garden plan. If through magic it were possible to transport one of these areas to the rear of a center city townhouse it would serve as a perfect small garden. The design principles that have been used in the planning of these gardens apply to both the country estate and the smallest of town gardens.

no beginning or end

There really is no beginning or end to the Meadowbrook gardens. One unit works alone, three or four together do the same and when all are combined the result is nothing short of spectacular. While the visitor has the feeling of being in a large garden the total area covers only about one acre. It is the imaginative use of space that creates the illusion of a much larger area, something that we all strive for in our garden planning.

J. Liddon Pennock, Jr. and his wife Alice have been planning, building and refining this series of gardens for almost half a century. An enthusiastic Liddon Pennock reflects as we step onto the terrace for a walk down memory lane: "None of this was here when we built the house. You stepped out the back door and the land dropped right away." We leave the terrace and find ourselves on a level lawn that forms the center of what he calls the Eagle Garden. "We thought it would be fun to have a place where people could stand on a level lawn and where we could put up a tent if the occasion called for it." Pennock goes on to explain that the difficult part of planning this first garden with its level area is the part that no one ever sees, the engineering of the retaining wall that supports the level area on the steep hillside. As I observe to my host how perfect the proportion of the garden seems, I'm asked to stand in the center and to turn and face the house. "Look carefully," Pennock urges "and you can see that everything is on axis. That's very important when linking areas together. The

FARM *Gardens Without Beginning or End*



by Ed Lindemann

opening off the terrace onto the lawn is a mirror image of the fireplace on the opposite living room wall." Pennock goes on to explain that the areas both inside and outside are all on axes. He works mostly with 90° angles that are occasionally divided by 45° angles. Important elements in the design are centered on axes. "Stand in front of the fireplace and look straight through, the mantle, coffee table, opening off the terrace and the tree framed vista of a quarter mile are all on line," he explains. "Now stand in the center of the Eagle Garden and let your eye go off at 45° angles and you come to four sharp 90° corners. Architecturally you are standing in a square. All of the masonry, the terrace, walks and walls either line up with the house or are at right angles to the house. Doors and windows are repeated in the walks and wall-openings.

"We used a mathematical formula to form the ellipse that shapes the beds and gives the garden its interest. I don't understand the formula, but I know when it works and does what I want it to," he explains. Pennock has always been happier with a ruler in his pocket rather than a watch. He is always calculating, measuring and studying angles. His solution to success in a design is to analyze and work it all out before he begins construction. Alterations to the plan are always in order when building the garden, but when asked if he were to start over would he change or do any part differently, the answer is an emphatic "No!"

Each garden relates to the house; Pennock refers to them simply as more rooms out-of-doors. The terrace reflects the living room; another garden the dining room; the herb garden a kitchen; and the pool a bath in the outdoor living areas. By relating these areas to interior settings the scale is less apt to get out of proportion so the inside and outside work as a complete unit.

"Notice that there are no foundation plantings at Meadowbrook Farm," say Pennock gesturing across the back of the house. "When we first built the house we put rhododendron all around the base. Then as we began to develop gardens it seemed so much more sensible for the inside and outside to be directly linked together that we removed the rhododendron buffer. It is now like walking from one room to another rather than from inside to outside." Like rooms, the various gardens

continued



When viewed from above the living room terrace reflects the living room itself: outdoor furniture and plants duplicate the arrangement of indoor furniture, drapes and wall hangings. The size was kept approximately the same as the interior room to maintain the feeling of intimacy between the two areas.



This set of steps leading from the upper level Eagle Garden to the lower level Round Garden was deliberately designed without a landing to break up the transition. The passage from one garden room to the next works beautifully with the repetition of color, texture and geometric shapes. Although completely separate, the areas connected only by the flight of steps work as a complete unit.

at Meadowbrook Farm have distinct entrances and exits and in most cases a clear traffic pattern. That is one of the main reasons the gardens work individually and also as a whole when linked together in a series.

perspective

Perspective plays an important role in Pennock's design process. Often it is altered to create a greater illusion, something that the designers of all small gardens should be aware of. A good example at Meadowbrook Farm is the way the Eagle and Circle gardens are linked. The Circle Garden is approximately 10 feet below the level of the Eagle garden. The round beds and fountain in the lower circle garden are deliberately smaller than the round lawn area of the Eagle Garden so that when you stand on the upper level Eagle Garden and look down into the smaller circles they seem even further away. The steps that lead from the upper level to the lower were designed to continuously flow, with no landing to break it up. A well-known landscape architect once told Pennock that he had committed a great design error by not having one or more landings in the stairs. Pennock disagrees, "It is a much more dramatic entrance; you feel as though you have descended a greater distance because you do it all in one sweep. You don't have time to stop and look around."

Sometimes perspective can play tricks on even the eyes of the best trained designer. On a trip to England Liddon and Alice were especially taken with a stone belvedere they discovered. Liddon notes "It was especially correct for our garden because of the scale. Most belvederes are quite a bit larger." The belvedere at Meadowbrook Farm is comprised of five stone columns with an ornamental iron domed roof. It serves not only as a lookout post to contemplate the view of the valley below but also as the focal point of the lower garden and the round garden. It is also viewed from the brick terrace off the cardroom in the house. The perspective and balance trick is that if you have five columns spaced equally in a circle, they will not always appear evenly spaced as you view them from various angles. Pennock's solution was to decide which two views were the most important. The third least important view was the one from the round garden. When the belvedere is viewed on axis from this garden it appears that the stone columns are unevenly spaced. The play on perspective has become a conversation piece.

design principles triumph over the practical

As you continue to tour the gardens with their owner/designer it becomes more and more evident that Liddon Pennock refuses to sacrifice his design convictions for practicality. The dipping pool is a good example. "I didn't want it to look like a mini-swimming pool or spa, all turquoise and flashy tile borders. I wanted it to look like a garden pool that fits into the landscape plan and still functions as a pleasant place to go to dip and cool off on a warm day." The contractor objected. He told Liddon that the paving had to be mortared, that the pool had to be painted, otherwise there would be a problem with the chemical reaction on the raw concrete. Pennock stood his ground: no tile border and no paint. Pennock compromised: mortar was used only where it was absolutely necessary. The result is a lovely garden pool that often doubles as a bathing pool.

As I listened to the story behind the development of the gardens at Meadowbrook Farm, I became more aware of the intense attention to detail that has gone into the planning over the years. All of the design elements are evident in their correct use; however, it is carrying the design process to the "nth" degree that has achieved perfection. The job of planning these gardens never ends. There is still undeveloped space: the designer Liddon gestures widely as he describes a new lilac walk that might connect this area with the vegetable garden someday. But that is the kind of daydreaming that all gardeners do. The planning and constant refining of what exists in these gardens is a job that continues. Not only the plans for next year's bedding plant color scheme but details such as which tree trunks in the bordering woods should have ivy planted on them to hide them. Yet during our walk Pennock points to a majestic white pine with a thick straight trunk and says, "I'd never cover that beautiful trunk with ivy, just look how it pulls your eye to that area."

What does Pennock consider to be successful garden design: Be aware. Know the design elements, study the possibilities and make sure that all geometric shapes are mathematically correct. Express yourself in color and texture, don't be afraid to be a little unconventional. That will give the garden your personality. Always incorporate a surprise element and don't forget a bit of whimsy.

"We didn't want to have an estate; we wanted a place that we and our friends could enjoy." The Pennocks have focused



◀ The dipping pool blends into the landscape. The paving and the pool color were all played down to avoid drawing attention. The lush planting and the off-center focal point give a feeling of informality to this private corner.

Originally a steep hillside, the Eagle Garden provides a level extension of the terrace. The garden, which at first glance appears to be circular in design, is actually an oval in which a geometric formula was used to create the shape of the beds.

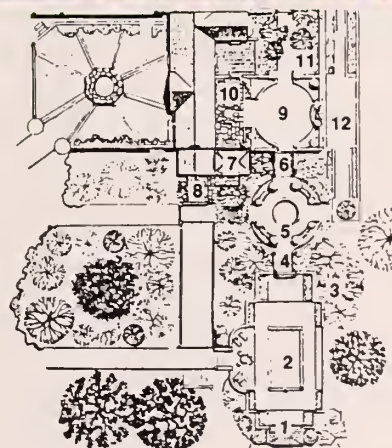


on their particular points of view and they have created exactly what they set out to do. They have created Meadowbrook Farm, whose gardens bring continued joy to the owners and visitors alike.

●
Ed Lindemann is PHS horticulturist and Philadelphia Flower Show designer.

MEADOWBROOK GARDENS

- | | |
|----------------------|----------------------|
| 1. Bath House | 7. Glass Room |
| 2. Swimming Pool | 8. Brick Terrace |
| 3. Pool Garden | 9. Eagle Garden |
| 4. Steps | 10. Terrace |
| 5. Round Garden | 11. Dipping Pool |
| 6. Ivy Covered Steps | 12. The Lower Garden |



UPWARDLY MOBILE HOUSE PLANTS

 by William F. Delafield

photos by Anne S. Cunningham



Impatiens up a tree.



Watering upward — you're either tall or use a directional hose.

Debbie Delafield plucks an impatiens from the tree bower.

We began to use the vertical spaces in our backyard quite accidentally. Because Debbie and I live with our children above converted stables and our deck is off the second floor, we had to lean out and look down to see the garden. It occurred to us that we'd like to bring some of the garden color and interest up to our level. We also had an overflow of houseplants and no place to put them outside for the summer.

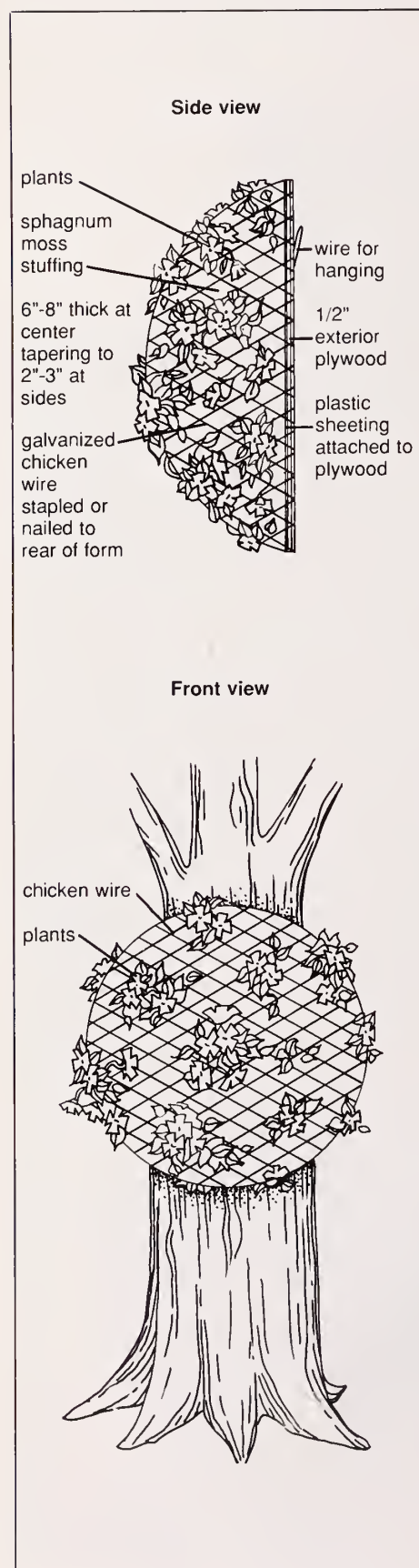
The railroad tie beds around the base of two pines, were filled to overflowing, and we had no way to go but up. The great neutral grey trunks of some old white pines were the perfect solution. A quick visit to the local garden center to buy galvanized metal pot clips, and we were on our way. Sold as "Pot-Klip," this ingenious device is nailed to a support, in our case the tree trunk. We simply slip the lip of a terra cotta pot under an attached, movable, metal finger to hold it firm and steady.

We were careful to use short galvanized roofing nails that attached to the thick old bark but did not penetrate the cambium of the tree beneath. (For younger trees or those with thin bark like maples, it might be better to construct a padded wire harness.) We started slowly, hanging just a few pots, and as we did, the idea grew — and up we went in a decorative pattern, filling the

continued



UPWARDLY MOBILE



space on the trunks with pots brimming with color. Soon color and form became the decorative focus rather than just finding space for summering houseplants.

We began to experiment about six years ago with different plants in the pots, but we found that the lack of sunlight combined with our desire for sharp bright color, made impatiens the plant best suited to the situation. Some of the pots are as high as 25 feet off the ground and impatiens is a good 'tell-tale,' for when it starts to droop and dry out, we know it's time to water. The terra cotta pots tend to dry out quickly, and during the very hot dry days of summer, we have to water twice a day.

The drying out problem led us to use half wire baskets lined with sphagnum moss and filled with soil. We found that the moss holds moisture much longer than terra cotta, and the plants benefit accordingly. The half baskets are ordinary wire hanging baskets, available in many sizes, which we cut in half with sturdy metal shears and then enclose the open side with galvanized chicken wire. We line the baskets with pre-dampened sphagnum moss, not only

Amazingly, we've had no problems at all, not even slugs in the big circle, probably because there is no soil, just a base of sterile sphagnum.

because it packs and shapes better than dry, but also because unless the moss is wet it is very difficult to get moisture evenly throughout the basket.

After seeing how well these moss lined baskets performed, we decided to try some bigger projects. There were still large tree trunks in our garden that needed something more than small terra cotta pots and stuffed wire baskets. The idea evolved to use large sphagnum-covered plywood shapes to fill these spaces. We're still amazed at how simple and effective these large forms have been.

We bought 1/2 inch plywood sheeting, exterior grade, anticipating constant moisture. The first shape we chose was a three foot circle. After drawing the form on the plywood we used a jig saw to cut it out. Knowing that the plywood shape would constantly be damp, we covered the disk with the heavy plastic garbage bags and used galvanized chicken wire. Then working from bottom to top, we used galvanized staples to attach the chicken wire across

the front, extending around the back of the disk. After one section of chicken wire was secured to the form, we stuffed the 'pocket' with damp sphagnum.

It's important to leave enough slack in the chicken wire to allow for stuffing expansion and plenty of room to put bedding plants in the moss. The squares in the chicken wire are usually big enough for the root mass of market pack bedding plants. After the first level of wire and stuffing, the same pattern is repeated up to the top. When it's finished, we plant the form, taking care to settle the sphagnum moss around the roots of the bedding plants with our fingers.

At this point, the form is ready to be hung. We use heavy duty hooks, as these forms weigh a lot, especially when wet. During the late spring and all summer, we fertilize the plants with Peters 15-30-15 every 10 days and pinch back the plants as necessary to encourage full, tight growth. Almost before we know it, the shapes are a glorious mass of color.

Interesting plants that have worked for us over the years on both small and large forms in other locations are begonias, browallia, portulaca, nasturtiums, vinca, and all ivies and herbs — parsley, catnip, basil, thyme and oregano. Amazingly, we've had no problems at all, not even slugs in the big circle, probably because there is no soil, just a base of sterile sphagnum.

Some shapes have worked well over the years, others like squares, lose their definition too quickly. One of our best was an ice cream cone: an inverted tall triangle planted with red impatiens on the bottom, white on the top. We kept the bottom pinched and tight to form the cone, then let the 'vanilla ice cream' grow full and fluffy around the top. This summer we hope to construct chicken wire tubing and create a multi-colored barber pole effect around the giant tree trunks.

The shapes and colors used in these forms can be as vivid as a gardener's imagination. The use of upright, vertical spaces is like hanging pictures on walls. Anyone can decorate trees, walls, doors, garage siding, fences and pool houses with all manner of fanciful, colorful creations.

Bill Delafield is nursery manager and landscaper for Weldon Nursery in Bryn Mawr, PA. He is a frequent ribbon winner in the Philadelphia Flower Show.

New Woody Plants to Brighten the Late Summer Garden

 by Amalie Adler Ascher

photos courtesy of U.S. National Arboretum



Pyracantha 'Navaho,' vibrant orange-red berries.

In landscaping the objective, as a rule, is to create an ongoing display — some of it permanent — the year-round. Most seasons present no problem. Plenty of shrubs and trees bloom in the spring; winter reveals the structure and bark of trunks and branches, contributing lines and textures for viewing, at the same time bringing the foliage of broad-leaved and needled evergreens into focus. Then the fall offers the glorious colors of changing leaves complimented by berries.

It is in late summer, for the most part, that the garden landscape suffers from a lack of excitement, at least as far as its trees and

shrubs are concerned. The background scenery as the summer progresses turns mostly to a sea of green, the rose of sharon and crape myrtles providing the principal relief among woody plants in the way of bloom, followed later by pyracantha with its flaming fruit. And yet, these plants are not all they should be to carry the garden on in triumphant splendor.

The rose of sharon, (*Hibiscus syriacus* or shrub althea) in its original form was hardly a plant to acquire deliberately. Along with mock orange and spiraea, the old-fashioned althea was commonly planted in bygone days. To its discredit,

continued

though, it was weedy, reseeded to a fault and had plain, homely foliage. Its hibiscus-like flowers in an insipid shade of lavender were hardly the sort to rhapsodize about. Even if they had been special in other ways, the fact remained that they were small, sparse and short-lived.

As for the pyracantha or firethorn, its brilliant orange berries that held out such promise, more often than not, disappointed. The old varieties were susceptible to fireblight and scab, which blackened fruit and foliage and killed twigs if not an entire plant.

The crape myrtle (*Lagerstroemia indica*) for all its beautiful flowers, decorative exfoliating bark and radiantly colored leaves in the fall, is not immune to faults either. Of all plants, none is more characteristic of the antebellum South where it has been a symbol of grandeur for rich and poor alike from Colonial plantation days right up to the present.

In Baltimore where temperatures fall routinely into the teens and occasionally plunge a degree or so below zero, the crape myrtle braves the elements like a trooper. Some cultivars are particularly winter hardy, persevering in places as far north as Massachusetts, although probably at some sacrifice to development and flowering. The fly in the ointment, however, was that the crape myrtle was prone to attack by powdery mildew.

It was the failings of such otherwise worthy plants, along with their suspected latent virtues, that led Dr. Donald R. Egolf, a research horticulturist at the U.S. National Arboretum, to begin a breeding program there in 1958. Adopting as his specialty ornamental shrubs and small trees — the pyracantha, crape myrtle and rose of sharon among them — he has sought to improve their tolerance to cold, resistance to disease (with an eye toward reducing the use of pesticides) and period of display especially in those plants that produce flowers and fruit later in the summer. To date, Egolf has introduced six pyracanthas, three rose of sharon and 17 crape myrtles. Except for his rose of sharon creations, which he names after Greek goddesses, all other Egolf originations carry the names of American Indian tribes. It's Egolf's way of telling the world that the plants are in substance American — bred by an American scientist on American soil at an American institution.

It takes a minimum of eight to 10 years, from making the first crosses to building enough stock to put a new shrub (pro-



Pyracantha 'Mohave.' The white flowers turn to a brilliant orange-red fruit in August and remains showy until mid-winter.

duced through hybridizing) on the market. The Arboretum itself does not supply plants to the public, but relies on selected wholesale propagation nurseries, which the Arboretum furnishes with rooted cuttings. The nurseries raise the plants for offering to retailers and other wholesalers. The Arboretum receives no payment for its materials or work, gaining instead prestige as plants make their way into gardens around the world, earning honors as they go. Some of Egolf's introductions, for example, have received the Award of Merit of the Royal Horticultural Society in England as well as the Pennsylvania Horticultural Society Distinguished Achievement Medal in 1986.

pyracanthas

To develop disease-resistant pyracanthas — the Egolf group to date includes Shawnee, Mohave, Navaho, Teton, Apache and Pueblo — Egolf pollinates shrubs in March and plants the seed in the greenhouse the following December. At the same time, he grows bacteria in a culture for three months. When seedlings are 6-8 inches high, they are inoculated with disease organisms. Plants showing no sign of infection — usually only about 8% of a crop — are potted up for another season of growth in the greenhouse and again subjected to infection. The survivors are planted in the field the following year to evaluate their disease resistance there. Any that show the least susceptibility are discarded. "We screen heavily," Egolf says, "and refuse to accept a cultivar unless it meets our stiff requirements."

Mohave, he adds, is particularly easy to propagate. (Note: It is illegal to propagate patented plants for commercial purposes without authorized permission.) A tip cutting 6-8 inches long inserted into almost any potting medium should root in three weeks. Early summer is the time to set it in the ground. Later, a cold frame or mulch will

be needed to protect it. Pyracantha does not breed true from seed.

At the Arboretum, Mohave, in particular, holds the spotlight. Huge plants are paraded behind the Administration building, while at the entrance, they are espaliered splendidly against the bare white walls.

rose of sharon

Egolf created his rose of sharon introductions — Diana, Helene and Minerva — by crossing tetraploid plants (four sets of chromosomes) with diploid plants (having two sets of chromosomes). The three sisters are thus triploids with three sets of chromosomes, averaging out the number of their parents. Originally, Egolf had wanted to produce new tetraploids, but found they bloomed late and not too abundantly. His triploids, by contrast, are compact, have thicker, greener foliage and a longer season of bloom produced in greater profusion. They also better tolerate atmospheric pollution and light frost, and because they are sterile (a trait characterizing triploids) set few if any seeds.

Less than a quarter of Minerva's flowers, for example, produce seed capsules and those that do develop, contain a meager one to five seeds. Even at that, few if any of them ever mature. With practically no seeds to disperse, the number of volunteer plants is cut to a minimum, saving the grower the labor of weeding. Released from the obligation to make seeds, the plants can concentrate on setting flower buds, which, Egolf says, is the reason Minerva and her sisters continually initiate them.

By mid-August, diploid types of rose of sharon have usually acquired noticeable interveinal chlorosis followed by more wide-spread yellowing and premature leaf drop. Egolf's altheas have overcome these problems. They're also immune to disease and except for occasional aphids, don't appeal much to insects either. Ruggedly standing up to heat and drought, they can endure in difficult situations, needing no fertilizing or pruning at all. Like his pyracanthas, the altheas are also easily propagated from cuttings.

crape myrtles

Egolf began his work on crape myrtles in 1962. To bring about their transformation, he mated selections of an Indian species brought to America by European colonists, with a mildew-resistant Japanese species collected by the Arboretum's own plant explorers in the Asian wilds. The cultivars



Hibiscus 'Diana,' a pure white rose of sharon

cloned — of which Biloxi, Miami, Wichita, Natchez, Muskogee, Tuscarora, Tuskegee, Acoma, Hopi, Pecos and Zuni are the most recent — besides being resistant to powdery mildew, are more shrub-like in growth habit and have added a new and exciting range of shades to the basic red, white, pink and lavender flower colors. The bark too, with its heavier mottling and greater variation in color, is more striking.

Crape myrtles, by nature, are rugged plants that require no special fertilizing or pruning to become champion specimens. Egolf's are cold-tolerant as well. At the Arboretum some of his new hybrids have withstood temperatures well below zero degrees F., while the common types alongside have died back to the ground.

Although a number of Egolf's new crape myrtles have been tested over the past couple of years at the Scott Arboretum, Swarthmore College (Pennsylvania) and have come through the winters without injury, Egolf is not yet prepared to guarantee unqualified survival in a climate colder than that experienced in Baltimore. Even if the tops of plants are killed to the ground, however, the plants will come back, he says, because the roots are hardy and will produce new growth from the bottom each season. (For that reason, in colder areas,

the crape myrtles may be more shrub- than tree-like.) Egolf recommends that when the plant's survival is open to question, they be set in a protected environment such as behind a windbreak, on a patio or in a container.

Acoma, Hopi, Pecos and Zuni are suited to patio container culture, foundation plantings, borders and specimen treatment, and as hedges or in masses on large properties. Biloxi, Miami and Wichita make good candidates for featured positions or grouping in formal arrangements.

The crape myrtles can also be used as a hedge, background screening or in the role of a sculpture. Despite multiple stems, they can even be trained as a standard. The trick, Egolf says, is to start when a plant is young and trim the branches to a single shoot. One horticulturist has designed his formal green and white garden on rows of Diana shaped to one trunk.

Egolf's newest introductions — Minerva (rose of sharon); Apache and Pueblo (pyracantha); Acoma, Hopi, Pecos and Zuni (crape myrtles) — due to their release in 1987, won't be available on the market for three to five years, the amount of time needed to produce the stock. The others are on the market, although not every nursery or garden center is likely to offer them

all. Should you have difficulty locating plants in your area, Wayside Gardens, Hodges, South Carolina, 29695-0001, carries the pyracanthas Mohave and Teton and the rose of sharon Diana; and Carroll Gardens, 444 East Main Street, P.O. Box 310, Westminster, MD 21157 (catalog \$2) has the crape myrtle Natchez and the pyracanthas Mohave and Navaho.

A selected listing of Egolf's new introductions including some of their characteristics:

Pyracantha

Mohave — brilliant orange-red fruit that ripens in mid-August and remains showy until mid-winter. Dense, upright branching.

Navaho — Orange-red berries; shorter, more compact height of 6 feet.

Teton — Orange-yellow berries, well-defined columnar shape, densely branched.

Rose of Sharon

Diana — pure white flowers.

Helene — white flowers with a prominent red eye.

Crape Myrtle

Natchez — called one of the best selling small trees in the nation, has pure white flowers.

Tuskegee — Dark pink to nearly red flowers, leathery dark green leaves and a pronounced horizontal growth habit.

Zuni — Medium lavender flowers, semi-dwarf growth habit and glossy, leathery foliage turning orange-red in autumn

Pecos — A long flowering season (early July to September) of clear medium pink blossoms. Foliage turns maroon in the fall.

Hopi — The most cold-hardy of the semidwarf cultivars. Clear pink flowers from June to late September; fall coloring bright orange to dark red.

Acoma — Pure white flowers; its semi-pendulous, low-spreading growth habit accounts for its distinction.

Amalie Adler Ascher, a frequent contributor to *Green Scene*, was named a 1987 regional winner in the newspaper and magazine divisions of the Bedding Plants Incorporated garden writing contest. She also received the Eastern Region award the All-American Rose Selections contest.



The Water Dome Fountain encourages water play without soaking the visitor.



The Children's Garden

 by Deborah Reich

A small boy looking a little confused follows his mother through Longwood Garden's huge conservatory. They reach a door leading into a smaller greenhouse. "This," she tells him, "is a children's garden." A smile covers his face as he sees the domes of water glistening over a pool. He runs his hands through a smooth curtain of liquid when he catches sight of a big green bear fishing on the other side of the pool. He rushes to see what's at the end of the line. Letting out a peal of laughter, he runs up a ramp to join another bear, who looks down on the rest of the garden. His mother tells him to look through a hole cut in a wall, and he sees children walking in rooms made of leaves and flowers.

Longwood Gardens is a place of grand dimensions: visitors can lose themselves on broad paths that cross vast sweeps of lawn in the shade of huge trees, or wander in the fragrance and color of three and a half acres of glass-enclosed conservatories. Sometimes, though, I have left Longwood feeling dazed by the spectacle, and I have overheard other visitors express awe rather than inspiration. Children, already exhausted at the effort of trying not to run, touch, and smell in spite of the limitless temptations that confront them, are often

overwhelmed.

Last May, Longwood decided to give the 80,000 children who visit annually something special of their own. The Children's Garden, tucked into a 150 square foot corner of the conservatories, gives small visitors — and adult companions — a break from the "don't touch" atmosphere, where they can relax and experience the variety of sensory pleasures gardens can offer.

The garden was conceived in 1985 by Catherine Eberbach, at that time a student in Longwood's Graduate Program in Public Horticulture Administration. A former horticultural therapist, she noticed that young children were often frustrated rather than fascinated by the diversity of sights at Longwood. She mentioned her observation to director Fred Roberts. He appointed her chair of a committee comprised of talented people from every department at Longwood to work on the problem.

"The best way to [help children] love gardens is to give them a pretty one ready made," wrote Gertrude Jekyll in *Children and Gardens* (1908). Eberbach set out to create a garden that, in keeping with Longwood's role as a display garden, would showcase children's favorite

elements. The design process began with the children themselves. Working with several hundred first to fifth grade student at P.S. Du Pont Elementary School in Wilmington, Delaware, and New Garden School in New Garden, Pennsylvania, Eberbach asked them each to draw a garden.

Many adults choose a vegetable patch as their first gardening effort (my landscape design clients, even if they only have a tiny townhouse yard, almost always request a space for edibles). Perhaps because of this preference, most children's gardens and gardening books feature vegetables, but Eberbach discovered that her kids valued beauty over utility. Dividing their drawings into three categories: ornamental, functional and combined, she found that by far the largest number depicted a garden of delights.

The students showed an awareness that a garden wasn't just another playground; even the youngest children recognized that a garden was a special environment for plants. Other elements common to most of the drawings were animals and some sort of water feature. The pictures showed an appreciation for detail; with their visual plane close to the ground, kids recognize



We're all in good company in the Tree House.

Longwood Gardens Thinks Small



What child wouldn't want to go goldfishing with Popper the Bear.

the green scene /march 1988

peculiarities of shape and color that many adults fail to notice. In class projects which presented a variety of garden forms, most students favored a secret garden, and Eberbach observed that many young Longwood visitors looked for a place to hide as they toured the grounds. Research, however, indicated that kids play within 100 feet of their home, and crave privacy combined with a sense of security obtained by knowing adults are nearby.

Children crave adventure, too, and seem to see parts rather than a whole landscape, so Eberbach divided the space into four quadrants to diversify the experience. The fountain area and Tree House are designed to accommodate both children and adults, but the Maze and Tea Gardens are scaled for six to nine year olds. This age group was chosen because they are the ones most often taken on school field trips and family outings.

Because this age group comprises a range of reading abilities, topiary animals are used as an interpretive element in lieu of signs. Their presence lets kids know that it is all right to touch, sniff and otherwise enjoy the surroundings. Four bears planted in table fern (*Polystichum tsus-simense*), and two giraffes planted in ivy (*Hedera*

continued



"Kids only" in the Tea Garden and touching is definitely allowed.



helix 'Gold Dust') signal places of activity and encourage movement through the different garden areas.

The presence of Popper, a bear who fishes for real goldfish in the L-shaped pool, invites visitors to touch the water. Five bubble-domed fountains at waist height make water play possible without splashing clothes. Designer Eberbach, who was sure of the fountain's appeal the minute it was assembled in the plumbing shop, exclaims: "I love the fountain best — it has a universal appeal and brings people together." I notice that adults as well as children relax the minute they enter the fountain area, and I'm reminded of the water games, or *giochi d'acqua*, with which grownups amused themselves in 16th and 17th century European gardens. The water domes surely would have pleased Longwood's founder, Pierre du Pont, who wrote: "As a child I was always delighted to behold flowing water and I confess to still feel a thrill at the sight of clear water running freely. . ."

Behind the fountain, flower lined ramps slope gently up to the Treehouse, where the bear invites even the newest walker to look down on a garden scene. Children who join him have a rare opportunity for a

bird's eye view, and the reassurance of seeing what they will enter below. Depending on their walking ability, they can descend by returning to the ramp or continue down a stairway. The Treehouse, actually a platform set in a cut and resurrected elm, gives adult companions a vantage point from which to observe their charges.

At the arched entrance to the Maze and Tea Gardens, Rudi the bear holds a sign saying "Kids Only." In these two quadrants, the garden elements have reduced dimensions; even if young visitors can't read the notice, the proportions of the space let them know that this is their special place. While normal garden paths are four feet wide, the paths here are only eighteen to twenty-four inches, and the trellised archways stand five feet high. Once inside a child, safe but separate from adults, can bend over and inspect raised planters filled with scented geraniums and other fragrant, colorful plants. Passing through another archway, they find themselves in the Tea Garden, an intimate, sunny space where they can sit down to share tea with another bear named Dewey or help him water plants.

Leaving the restful Tea Garden, children enter the Maze Garden, where a labyrinth

of "hedges," topped with flowering plants, surrounds them in a world of leafy surprises. Instead of waiting for shrubs to grow, the walls were constructed of plywood and wire fencing, filled with sphagnum moss and planted with over 2,800 ivy cuttings (*Hedera helix* 'Duck Foot' and 'Jubilee'). More complicated versions of this garden game have frustrated the likes of Napoleon and Alexander the Great. Longwood's miniature example didn't permit space for dead ends, so kids can run through on the first trip, and only slow down when they reach the two foot tall tunnel at the end.

The tiniest maze-treaders can walk, but most have to crawl through the exit tunnel, which is covered in passionflower vine or granadilla (*Passiflora quadrangularis*). Because they are so close, when the light shines through the large leaves and saucer-sized blue flowers they take on a magic quality. Most children return several times to the maze, at first looking for places to hide. Then they start to notice the flowers on top, and sit down to play with Mr. G. and Betty, the giraffe couple who inhabit the maze. The blooming plants are replaced periodically, but always relate to major displays. Besides encouraging children to

apply what they see here to other Longwood exhibits, the transformation makes repeat visits interesting. A child's perceptions change, and so do the plants. Many seem to feel they have found their own secret garden and don't want to leave. Mary Mizdail, the gardener responsible for maintaining the Children's Garden, told me that many times, "Kids cry when their parents won't let them go back in the maze."

The Children's Garden is a place for everyone to take a rest from rules — Eberbach and Mizdail both told me that some adults widen the interpretation of the "kids only" sign. A goodly number of voting age adults make no excuses, and while some get sheepish and turn around at the tunnel, others unabashedly get down and crawl.

Unquestionably, part of the Children's Garden's success is the element of fantasy provided by the topiary. Gardener Pat Hammer oversees the creation of indoor topiary, which frequently highlight displays in the large conservatories. "Topiaries are the link between Longwood and people," she told me, "I think it's because they are so understandable to everyone. People aren't put off, even if they don't recognize the plants used. They know just as much about an elephant as I do." Eberbach noticed that children get on the ground and talk to the smaller topiaries, so a koala, a frog and a changing cast of small birds share the Children's Garden with the large bear and giraffe "tour guides."

On a visit last fall to the Chrysanthemum Festival, I saw children's fascination with the topiary safari animals that appeared throughout the conservatories. Children pointed excitedly to a life-size elephant spouting water, a leafy hippo half submerged in a pool, a giraffe and child walking calmly across an expansive indoor lawn, and a panther chasing a monkey up a column. But the children's enthusiasm was dampened, as most of the animals were positioned beyond their reach. In the Children's Garden, the animals are available for stroking, poking and even lap-sitting. Despite rigorous care, the bears and giraffes look a little worse for the wear and tear. While the animals on display in other parts of Longwood must live up to its standards of perfection, it doesn't bother Hammer to have some shaggy examples: "It says to visitors it's all right to handle them."

The Longwood staff, while grateful that



The exit tunnel: many children circle back immediately to the entrance for another walk through.

the public usually respects the effort behind the magic and keep their hands off the array of horticultural treasures, has also learned that it's O.K. to touch plants. Hammer feels that giving visitors of all ages a chance for close contact in the 1500 square foot Children's Garden makes them aware of subtleties in plant texture, scent and hue, so that both adults and children have an enhanced appreciation for all 350 acres of Longwood's offerings.

Greater appreciation for plants and the landscape, of course, has been Longwood's goal all along. Pierre S. du Pont bequeathed his gardens "for the sole use of the public for purposes of exhibition, instruction, education and enjoyment." The Children's Garden accomplishes this aim with a new population, and makes a visit to the gardens fun and a happy experience. Eberbach hopes that she has given children "a pleasant experience which makes them think fondly of gardens, so that maybe when they're adults they will want to preserve and create them." She suggests that those who want to make gardens more appealing to children gather inspiration from the concepts demonstrated in the Children's Garden, rather than trying to reproduce its specific features. She recom-

mends: make the plantings varied and within reach; provide some structures scaled to the child; create play places that are private but near the house or adult areas; and include space for water and climbing activities.

I feel most satisfied with my Longwood excursions when I leave filled with new ideas for festive displays and landscape schemes. The Children's Garden gave me ideas for making home landscapes more inviting to children, but it also made me think about my grown-up clients: maybe instead of asking them what they want, and then trying to convince them of the importance of tranquil water features, secluded corners and amusing topiary, I should just ask them to draw a garden.

Visiting Longwood's Children's Garden

Longwood Gardens is on U.S. Route 1, three miles northeast of Kennett Square, 30 miles west/southwest of Philadelphia and 12 miles north of Wilmington, Delaware. The Children's Garden will be on display through January, 1989, and is open during conservatory hours: daily from 10 to 5, and also on the evenings of fountain shows and holiday displays.


Children will find something new on repeat visits. The flowering plants in the Children's Garden are changed periodically, like the adjoining conservatory displays, but are always colorful, featuring fragrant varieties and varied textures

Longwood Gardens

For a schedule of Longwood Gardens' concurrent displays or more information about current displays, special events and evening hours, call (215) 388-6741. Longwood Gardens is on U.S. Rt. 1, 3 miles northeast of Kennett Square in Chester County's historic Brandywine Valley. Admission to the Gardens is \$6 for adults, \$1.50 for children 6-14, and free for children under age 6. Frequent visitors should inquire about the Annual Neighbor Pass at the Visitor Center.

Deborah Reich is a landscape designer and horticulturist specializing in indoor displays and residential gardens in New York City and the Berkshires. She is the coauthor of *The Complete Book of Topiary* (Workman Publishing, 1987).

INTRODUCE ASIATIC RHODODENDRONS

 by Edward S. Rothman

Rhododendron hybrid.
The Dexter Committee
designated it gg, hence
the registered name
Gigi.

Considering the great wealth of Asiatic rhododendrons now easily available to us, it's a shame that so few gardeners other than the ardent specialists are aware of their great garden value. Much of what I've written here may seem old news to the dyed-in-the-wool enthusiast, but the information does not seem to have trickled down yet to the average, avid gardener.

In ages past, a rich belt of varied rhododendrons stretched all around the northern temperate hemisphere. Mile-thick ice sheets killed off most of the American and European species, but the ice age did not engulf Asia, and a great diversity of species has survived there continually undergoing change. Estimates of 300 distinct rhododendron species exist in a single acre of the Szechuan wilds of China.

The British, beginning 150 ago, and our cousins in the Pacific Northwest more recently, have discovered more quickly than we in the Northeast the advantages of introducing and growing these native Asiatics as well as creating new hybrids with a really "new look" from them, and from their mating with American and European forms. Easterners will be quite familiar with the flaming colors of the deciduous azaleas (such as the Exbury types), but I shall regretfully ignore these and even ignore some of the evergreen, small-leaved wonders (such as Gable's Pioneer and Nearing's Wind-beam). I shall concentrate on the larger-

leafed rhododendrons because they go so largely unknown to typical Eastern gardeners. The direct result of the earlier interest of Pacific Coast nurserymen and their clientele is that rhododendron culture has become an extensive (and nearly exclusive), profitable industry in Oregon and Washington State. The lion's share of rhododendrons in our markets are plants that have been propagated there and shipped East.

Commercial growers, interested in quicker profit, however, continue to concentrate on raising large quantities of fast-rooting, easy-to-grow materials rather than on slower moving better types. As a result we receive a monotonous selection of Nova Zembla, 'Roseum Elegans,' white Catawbas, and similar plants that show little of the promising potential of the genus *Rhododendron*. More casual suppliers merely dig up wild *Rhododendron maximum* from the woods, and the customers are vaguely dissatisfied when the plant reaches 20 feet in height obscuring the window light and flowering in the heat of summer when the family is away on vacation.

east coast search for new forms brings problems

Early pioneers who looked for newer forms of rhododendrons among the Asiatic

forms signally include Joseph B. Gable, G. Guy Nearing, and especially Charles O. Dexter. This last experimenter with the Asiatics started, well past 60 years of age, to raise a race of extraordinary hybrids that are still prized today by those who understand and appreciate what he accomplished. Dexter grew seedling of his own crosses by the tens of thousands.

Unfortunately Dexter did not leave us good documentation, and too many of the tens of thousands of unflowered and untested "also rans" escaped into sales bins as Dexter Hybrids. This less than-good latter group damaged Dexter's reputation somewhat among the nurserymen. A special Evaluating Committee or Dexter Study Committee was assembled to search for, identify and evaluate the finer Dexter Hybrids. They tentatively labeled their finds with codes such as "'GG," "EEE," "XX" and the like. These finds were gradually registered perhaps tongue-in-cheek as "Gigi," "Tripoli," "Xerox," etc. The most famous of these was found in New York Botanical Garden as their #67. Cuttings were taken and rooted, but the original plant was destroyed by a flood. From the surviving cutting 'Scintillation' evolved, perhaps the finest modern hybrid in Eastern gardens today, beautiful in flower, glorious in foliage,



photos by Edward S. Rothman

ENDRONS INTO YOUR GARDEN



Scintillation

and easily grown luxuriantly. Its parentage can only be guessed at, for the problem is complicated by the fact that what Dexter had available to him for breeding in those early days as pure Asiatic species were in fact incorrectly identified or intergrades or even themselves hybrids.

Two *Rhododendron fortunei* plants used by Dexter in his breeding program and gifted in 1945 to the Morris Arboretum of the University of Pennsylvania by his widow seem to have some *R. discolor* and *R. decorum* characteristics. How very strange that *R. fortunei* brought to the West from China in 1850 by Robert Fortune, has been found only in the last decade in the authentic form in our area. Seed from the Orient arrives nowadays in a matter of a day or so and is widely distributed by the American Rhododendron Society.

Dexter was blackballed by his nearby nursery distributors because he was known to be using in his crosses *R. griffithianum*, a *Rhododendron* species known to be not hardy even in the mild Cape Cod area, and it was expected that its Dexter hybrids would surely die. They were of course wrong, and beautiful and healthy quite old collections still thrive at the Heritage Plantation in New England, the Tyler Arboretum near Media, Pa. and in the Scott

continued

Another Look at Asiatic Rhododendrons

Many species and hybrids of Asiatic rhododendrons are labeled not hardy or unsuitable for our region merely because their requirements are misunderstood. Camellias and tree peonies might have been forgotten and discarded had the former been tested in full sun and the latter in deep shade. Even I still raise my eyebrows in disbelief when I see unhardy *R. arboreum* and *R. ovatum* growing in Philadelphia area gardens alongside eucalyptus (selected for colder native provenances) and surviving our winters. I don't listen anymore to the pessimists who predict a wipeout with one severe winter. And for years I even heavily limed with dolomite my rhododendrons to counteract extreme hyperacidity of my organic rich garden medium despite the warnings that lime is toxic to rhodos. It is now slowly becoming fashionable to do so. The major failures with rhododendron stems from the "unearthly," synthetic medium that "containerized" commercial plants are grown in. The solid root mass — as though these were hydroponically grown — is extraordinarily difficult to convert to soil culture. What is fine for *rooting* a cutting is not so fine for growing a plant to maturity. The solution is to

provide plenty of perfect drainage and *never plant a rhododendron in a hole* unless it is an earth-grown, field-grown specimen. Field-grown specimens from Oregon are often grown in thick mats of Douglas fir bark.

Growing rhododendron from seed need not be done using mass-production techniques with round-the-clock artificial illumination. Growing plants from ARS-supplied seed or from your own supplies is really not more complicated than growing petunias from seed. I have supplied the directions for homely seed-raising in small styrofoam (or smaller) plastic cups on the windowsill for the less-well equipped grower such as myself. A friend of mine uses small plastic fishing-fly or tackle-boxes from the hardware store with individual compartments no larger than those of an ice-cube tray and in each cube raises a tuft of some 40 seedlings, a cross in each cubelet. Gable used earthenware flower pots.

I heartily recommend to you Dr. Serbin's still-timely 1971 article listed here. It started me in the direction of yaku culture. His gift of seed sample of yakushimanum started me on the road to addiction.

E.S.R.



R. fortunei x *R. yakushimanum*
Nestucca, first flowering yields
more blossom than foliage.

Arboretum collection, Swarthmore College, as well as the nearby magnificent garden of John and Gertrude Wister. And these are only a few examples.

In Maytime these areas are picture book dreams that are hard to believe even as one looks at the billowing masses of color. Some huge individual plants like Edgemont in the Wister garden are truly gardens in themselves.

R. griffithianum confers large flower size, and *fortunei* and its congeners may give flowers of six, seven, or even more lobes, and frequently the latter add the bonus of delightful scent. Yes, some rhododendrons are fragrant. The Whitney-Sather Nursery of Brinnon, Washington, for example, in their catalog list the *R. fortunei* crosses Heavenly Scent and Perfume — so named for good reason.

foliage: an inducement to grow

Even when not in flower the newer rhododendrons show great beauty in their foliage as well. Several Asiatic rhododendrons such as *R. rufum* (nicknamed the red fox), *smirnowii*, *elegantulum*, *adenopodum*, *pachysanthum*, *makinoi*, *metternichii*, *iodes*, *bureauvii*, and several others possess a wooly, or suede-like foliar undercoating called indumentum. This and a similar excrescence on upper surfaces (tomentum) inspire many rhododendron fanciers to grow for foliage beauty alone.

Most exceptional in this group and the only one of the species with this undercoating having any widespread acceptance is the species *R. yakushimanum*. This species is only one of many similar indumentum-bearing types — all of them gorgeous.

Although it comes from a latitude a full 10° south of Philadelphia's 40° N., *R. yakushimanum* occupies a high altitude, on a treeless and cold mountain top south of Japan near Iwo Jima of World War II fame. The alternating low temperature, hot blazing sun, fog and snow have produced a low-growing, compact and very tough plant beautiful in flower, resistant to insect and disease, and easy to grow here. I will go further and say that for me, it is the easiest to grow well of all the rhododendrons in my garden. I have there some 19 named and commercially available clones, besides some unnamed seedlings of my own, all yakus and all with individual characters.

The first two clones known to the Western world were sent by a Japanese nurseryman to Lionel de Rothschild at his Exbury Estate in southern England. One of these, in flower, caused a sensation when exhibited at the Chelsea Flower Show. It was awarded the First Class Certificate, hence the nickname "The F.C.C. form" although it

is now officially registered as 'Koichiro Wada' to honor the Japanese botanist.

Interest in this plant from Yaku Island or Yakushima has not abated one bit. The wild storms stirring up the genetic pool in that clime have produced unusually varied types of clonal forms, some with very narrow leaves, some with thick, broad leaves, some tall, and some with greater color development in the flower. This single species offers a wide variety of types to grow.

looking for better colors

One of the delightful properties of the Yaks is that the deep pink to red buds open to lighter pink blossoms fading in a few days to purest white. All three may be present at once giving a pleasing apple-blossom effect. The beautiful, upper-surface, tomentum coat and the lower suede-like indumentum are doubtless quite functional as well as beautiful. The former, the plant equivalent of sunglasses, protects the new growth from intense sunlight thereby avoiding burning tender tissue; the latter is thought to control water transpiration in the alternately too wet and too dry weather. In a light breeze the fluttering foliage may can-can dance to show an upper leaf surface of one color and then



R. yakushmanum
nicely budded for its
1988 spring opening.

flash its under-petticoats of a contrasting color. The effect is like red-green moiré shot-silk when the plant foliage is close to eye level in a good display planting. This type of beauty is also present often, to a far greater extent, in Asiatic "fur-bearing" species only mentioned above in passing. The "red fox," *rufum*, uses plenty of henna in its botanical beauty parlor, and *iodes* seems swabbed with tincture of iodine, but the glossary translates the latter as "rusty." *Adenopodum*, *smirnowii*, *pachysanthum* and *elegantulum* typically sport snow-white undercoating at no extra charge.

For some time now hybridizers have been trying to introduce more intense and non-fading color into Yaks as in the highly successful Taku while retaining the wooly indumentum. Indumentum development is unfortunately a recessive trait and several generations must usually be grown to retain this characteristic, unless of course both parenting species possess it. In hybridization yaks usually confer small size, sometimes, even dwarfism, on their progeny. The smaller plants can retain the floral beauty of tree-rhododendrons without their huge size.

I take special pleasure in growing simple binary hybrids of *yakushmanum*. Crosses with *smirnowii* are almost always

successful — I call them yaksmirs — but the clone 'Schamenek's Glow' named after the local hybridizer has a long history of success in the "just North of Philadelphia" area among rhododendron buffs. This somewhat taller selection of the groups achieving an unusual 5 feet at maturity, opens its buds to a striking deep pink which — a week later — alters to a flawless white snowdrift. I smile at questioners who return to the garden to look again at the hybrid: "Where's that lovely pink-flowered plant I saw here a few days ago?" Such successful plants are shipped far afield and after entering the Pacific Coast commercial sales catalogs get shipped world-wide to many ecologies and climates.

Such binary crosses benefit from the gift of hardiness that yaku confers on its progeny in marriages with very tender mates. We benefit from these experimental crosses, and there are some tried-and-true productions with colors and flower shapes that one expects only from semi-tropical delicate plants. In like manner crosses with harder mates also give a wide spectrum of plant and forms with new colors that enrich the gardens of progressive hobbyists.

Noteworthy widely grown examples of such simple crosses are Nestucca (see photo) (from *fortunei*), and Tanana (from

large, white flower trusses completely obscuring the foliage. Less publicized hybrids with *bureavii*, *metternichii*, *falconeri*, *strigillosum*, *pseudochrysanthum*, and *brachycarpum* are in my garden as youngsters waiting for their coming of age to bloom. I wait patiently.

where to plant hybrids

With the explosion of the population of hybrids, things can get a bit complicated, and there is little help in the literature for some of these difficulties. In deciding where in the garden to place a newly acquired species rhododendron one can always use as a first approximation the knowledge of where that species occurs in the natural state whether from Alaska or Siberia (*camschaticum*, e.g.) or an epiphytic rain forest Sumatran climate. But what can one do with one's own hybrid seedling when one parent is tender from, say a sunny Asian open field, and the other parent is an American dark forest denizen? Experiment is plainly in order. Sometimes minor differences are critical. Who has not failed with a given plant in one garden location and succeeded after moving the plant to another spot in the same garden?

From experience there is much to gain. The British and Pacific Coast gardeners

continued



Tom Everitt, a Dexter hybrid.

easily grow buttercup yellow rhododendrons like Crest, Sunspray, and Golden Star. The latter two, now succeed in my garden too, and my little rooted cutting of Golden Star bought for three dollars five years ago at a local section of the American Rhododendron Society meeting is loaded with flower buds for its first "coming-out party" next springtime. My colleagues assure me that it is quite hardy and will now flower routinely every year. It is a cross between *fortunei* and *lacteum*, both Asiatics. Incidentally, the first *lacteum* found was milky white: all the rest were bright yellow. I saw a vase of cut flowers of rhododendron *Loderi* 'King George' in Vancouver, Canada in the sales area of an ethnological museum and thought they were madonna lilies so enormous was the size. Again the cross was *R. griffithianum* x *fortunei* — both Asiatics. Now the *Loderi* group is said to be too tender for this area, but a plant called Sue, produced by Del James by recrossing King George with itself, has survived two winters in a protected corner of my garden. Cynics like the ones that unsuccessfully tried to discourage Dexter are saying that one severe winter will wipe me out. I don't agree. There is too much to gain not to give nature a helping hand. The prize is worth the game.

Additional Reading*

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*For color photographs of several genera of indumentum-bearing rhododendrons, refer to the *ARS Journal*, Vol. 39, p. 2 (1985) (Felice Blake); Volume 41, page 186 (1987) B. Badger - Ed Bancroft)

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*"An Exceptional Dwarf Rhododendron," A.F. Serbin in *Handbook on Rhododendrons and Their Relatives*, Eds., G.E. Jones and F. McGourty, Jr., Brooklyn Botanic Garden, Brooklyn, New York, p. 81-2, (1971). See also *ARS Journal*, Vol.

40, p. 137 (1986).

Directions for Raising Rhododendron from Seed, Edward Rothman, *American Rhododendron Society Journal*, Vol. 37, p. 100, 1983

*Books available in PHS Library.

American Rhododendron Society


Membership: Paula Cash, Executive Secretary, 14885 S.W. Sunrise Lane, Tigard, Oregon 97224. Subscription to the *ARS Journal* included in the \$20.00 U.S. annual dues.

Seed Exchange

William D. Tietjen, Chairman
52 Reeves Avenue
Guilford, CT 06437

Ed Rothman worked for 25 years at the Wyndmoor USDA labs as a member of an award-winning research team studying the conversion of extracts of wild subtropical plants to cortisone and related steroids. He has published 70 papers in technical journals. He is a member of two local American Rhododendron Society sections and frequently publishes in the *ARS Journal*.

ANNUALS IN DISGUISE: *Typecast Annuals Star in New Roles*

 by Bonnie Day

Can gardeners suffer from functional fixity? In the case of annuals, it just might be so. Taken out of their typecast roles, those colorful, commonplace work-horses become entirely new kinds of plants — groundcovers, hedges, shrubs and screens — and they lend themselves to their new roles with characteristic exuberance. Properly used, annuals can mimic the forms and effects of woody plants, with the added benefit of longer periods of bloom, and allow the gardener to experiment with landscape design without the commitment inherent in using longer-lived plants.

continued



JUST FOR FUN Annuals add a touch of whimsy when gardeners use their imagination to fool the eye. Not everything in this flower arrangement is as it seems. The large, pink "flowers" at the bottom are really heads of ornamental kale (*Brassica oleracea acephala*).

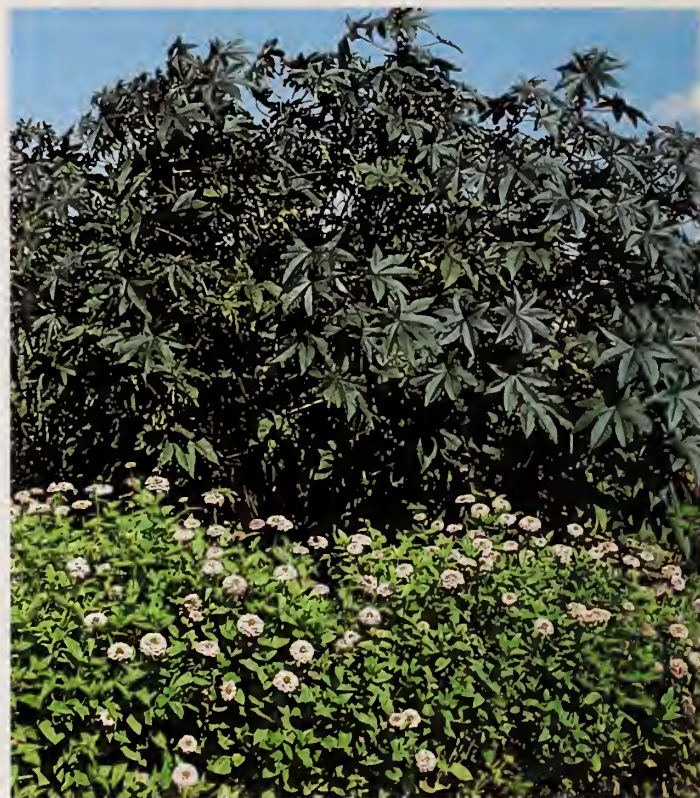


The soft green foliage of burning bush (*Kochia scoparia* forma *trichophylla* 'Childsii') acts as a background for the flowering plants; foreground: mealy-cup sage (*Salvia farinacea* 'Victoria') and the groundcover sweet alyssum (*Lobularia maritima* 'Carpet of Snow'). When the weather turns cooler, the burning bush will live up to its name, its leaves becoming burgundy red.

groundcovers

Be it a temporary cover for an area that is slated for change, or a special seasonal color or textural effect, annuals can fit the bill. Plant them alone or in combination with other plants, massed or confined to a small area.

Antirrhinum Majus, snapdragon (dwarf forms, in cool weather)
Asparagus densiflorus cultivars, asparagus fern
Brassica oleracea acephala, ornamental kale (in fall)
Capsicum annuum, ornamental pepper
Catharanthus roseus, Madagascar periwinkle
Daucus carota sativus, wild carrot, Queen Anne's lace
Dianthus barbatus, sweet william (biennial, dwarf cultivars)
Dimorphotheca sinuata, Cape-marigold (in cool weather)
Dyssodia tenuiloba, Dahlberg daisy
Eschscholzia californica, California poppy (in cool weather)
Gazania rigens, treasure flower
Iresine herbstii, bloodleaf
Lobularia maritima, sweet alyssum
Myosotis sylvatica, forget-me-not (in cool weather)
Pelargonium peltatum, ivy geranium
Phlox drummondii, annual phlox
Polygonum capitatum 'Magic Carpet,' knotweed
Portulaca grandiflora, portulaca
Sanvitalia procumbens, creeping zinnia
Senecio cineraria, dusty miller
Setcreasea pallida, purple-heart
Tagetes tenuifolia 'Pumila,' dwarf signet marigold
Tropaeolum majus, nasturtium
Verbena X hybrida, verbena
Zinnia angustifolia, narrow-leaf zinnia



Castor Bean (*Ricinus communis*), a giant among annuals, can grow as high as 10' tall in one season. Here, it is growing with *Zinnia elegans* 'Rosy Future.'

shrubs

Many landscape effects created with woody shrubs can also be achieved with annual plants. When grown singly in a container, the green cultivars of formal flowering kale (*Brassica oleracea acephala*) look much like dwarf conifers; Mexican sunflower (*Tithonia rotundifolia* cvs) is a lovely flowering shrub. Mass several tall growing cockscomb (*Celosia cristata* cvs) together to create a shrub that blooms all season long, or use a naturally big plant like castor bean (*Ricinus communis*) that could even be mistaken for a small tree.

Amaranthus tricolor 'Joseph's Coat,' etc., amaranth
Brassica oleracea acephala, kale (edible & ornamental)
Celosia cristata, cockscomb (tall cultivars)
Coleus X hybridus, coleus (may be trained as a standard)
Convolvulus tricolor, dwarf morning-glory
Euphorbia marginata, snow-on-the-mountain
Helianthus annuus, 'Taiyo,' 'Piccolo,' 'Italian White,' sunflower
Hibiscus moscheutos, common rose mallow
Hypoestes phyllostachya, polka-dot plant
Kochia scoparia forma *trichophylla*, burning bush
Lantana camara (may be trained as a standard)
Lavatera trimestris, tree-mallow
Mirabilis jalapa, four-o'clock
Ocimum basilicum, 'Spicy Globe,' 'Green Bouquet,' etc., sweet basil
Pennisetum setaceum, fountain grass
Pennisetum villosum, feather top
Ricinus communis, castor bean
Salvia elegans, pineapple sage
Tagetes erecta, African marigold
Tagetes tenuifolia 'Pumila,' dwarf signet marigold
Tithonia rotundifolia 'Torch,' 'Goldfinger,' Mexican sunflower

continued



Training plants may take more than one season, but the result is a formal, shrub-like habit unlike the plant's usual form. Here, *Coleus* 'Pineapple Beauty' is trained as a triple-level standard. This plant's training was completed in about eight months in one of Longwood Gardens' greenhouses.



Pots of wax begonia (*Begonia x semperflorens-cultorum*) make a flowering wall at the National Arboretum's National Country Garden.

hedges, screens and walls

To call a plant herbaceous is to imply that it is soft, without structure. Annuals can overcome that stereotype to add elements of structure to the garden. Trailing plants like hyacinth bean (*Dolichos lablab*) trained over fences or guided onto strings become screens, tall, upright plants like sunflower (*Helianthus annuus* cvs) stand on their own to provide privacy or obscure an unpleasant view. Rhubarb swiss chard (*Beta vulgaris cicla* 'Rhubarb') may serve as a low, informal hedge or backdrop for other blooming plants. Inserting potted plants or even growing them directly in an envelope made of wire, moss and soil creates an outdoor room divider or wall.

hedges

Alcea rosea, hollyhock
Amaranthus tricolor 'Joseph's Coat,' etc., amaranth
Beta vulgaris cicla 'Rhubarb,' rhubarb swiss chard
Begonia X sempervirens-cultorum, wax begonia
Brassica oleracea acephala, kale (edible & ornamental)
Celosia cristata, cockscomb (tall cultivars)
Cleome hasslerana, spider flower
Euphorbia marginata, snow-on-the-mountain
Helianthus annuus 'Taiyo,' 'Piccolo,' 'Italian White,' sunflower
Kochia scoparia forma trichophylla, burning bush
Lavatera trimestris, tree-mallow
Mirabilis jalapa, four-o'clock
Pennisetum setaceum, fountain grass
Pennisetum villosum, feather top
Petroselinum crispum, parsley
Tagetes erecta, African marigold
Tagetes filifolia, Irish-lace marigold
Tagetes minuta, muster-John-Henry

screens

Alcea rosea, hollyhock
Dolichos lablab, hyacinth bean
Echinostylis lobata, wild cucumber
Hibiscus moscheutos, common rose mallow
Helianthus annuus 'Taiyo,' 'Piccolo,' 'Italian White,' sunflower
Humulus japonicus, Japanese hop vine
Ipomoea alba, moonflower vine
Ipomoea X multifida, cardinal climber
Ipomoea purpurea, common morning-glory
Ipomoea quamoclit, cypress vine
Ipomoea tricolor, morning-glory
Kochia scoparia forma trichophylla, burning bush
Lavatera trimestris, tree mallow (tall cultivars)
Lathyrus odorata, sweet pea
Luffa spp., luffa gourd
Mirabilis jalapa, four-o'clock (low screen)
Phaseolus coccineus, scarlet runner bean
Tagetes erecta, African marigold (tall cultivars)
Thunbergia alata, black-eyed susan vine
Tithonia rotundifolia cvs, Mexican sunflower
Tropaeolum majus, nasturtium (trailing cvs)
Tropaeolum peregrinum, canary-bird vine
Tagetes minuta, muster-John-Henry (needs support)
Zea mays japonica, ornamental corn

Bonnie J.S. Day is a local writer and horticultural consultant. She received her M.S. in Ornamental Horticulture from the Longwood Graduate Program and is currently working for Longwood Gardens.


Pat Christopher is an instructor in the Continuing Education and Professional Gardening Programs at Longwood Gardens. She received the Longwood Gardens Certificate in Ornamental Horticulture and holds an M.S. in Organic Chemistry from the University of Virginia.



An oak with severe scale damage in the tree's crown: the insect has sucked the juices from the plant hampering new leaf growth and causing branch dieback. The scale's cover is visible to the eye but the adult insects and crawlers can only be seen through a microscope.

The Dying Oak Trees Need Arborist's Care

27

 by Joanne Miller

In and around Philadelphia approximately 40% of the oak trees are thinning at the crown and showing severe dieback throughout the tree. This problem is serious and quite common on ornamental and cultivated oak plantings in the Philadelphia, Maryland and Washington, D.C. areas.

The problem is an insect, obscure scale (*Melanaspis obscura*), that is sucking large quantities of valuable sap from its hosts: willow oak (*Quercus phellos*), red oak (*Quercus rubra*), pin oak (*Quercus palus-*

tris) and scarlet oak (*Quercus coccinea*) to name a few. Limbs and branches are weakened and die, and small or large trees are killed from large infestations. Obscure scale is an insect that is also found on oaks in the forest but never with populations so severe they cause damage to these natural plantings.

This insect is difficult to control in the city and suburbs because of its layering habit. Insecticidal sprays do not always penetrate down onto the insect.

Male and female instars overwinter on

continued

The Dying Oak Trees

oak trees under a protective cover. This cover is developed and may build up year after year from earlier generations leaving a cover over the insects from 1/16 in. to 1/4 in. thick with the current generations on the bottom.

The scale covering is circular and flat with a diameter of two to three millimeters. It is gray to light brown in color and black when rubbed lightly. This scale has one generation per year with eggs first deposited from mid-June to mid-September.

Female scales can lay 25 to 50 eggs that begin to hatch in one to four days. Crawlers emerge from these eggs and are usually active from June to September. Many of the crawlers move out from the female cover via the exit flap and settle under or on the margin of abandoned scale covers near leaf scars or under loose epidermis. These crawlers will rarely move out to an open surface. Most of the crawlers just settle right beneath the female adding to the build-up of cover and protection.

when to spray

If the protective cover is not too thick, a dormant oil spray in early spring is helpful, followed by a summer spray to control the emerging crawlers before they develop a protective cover. Time the spray to insure that a large percentage of the crawlers are on the move and have not settled under a cover yet.

In the Philadelphia area the second spray is usually applied in mid July but to assure maximum effect monitor obscure scale populations weekly starting in June. This means someone must climb up into the crown of the tree to collect twig samples that contain last year's and this year's growth. These samples should then be taken to a laboratory* for microscopic examination. During this examination the number of males, females, eggs and crawlers are counted. These weekly observations and counts can determine when a high percentage of crawlers are active and the correct time to apply chemicals. Also, you will observe if any parasites are attacking and killing the scale.

This past summer was my fourth summer observing, monitoring, pruning, fertilizing, injecting and spraying for obscure scale in Center City Philadelphia, and I have not yet found a guaranteed method of control.

I believe that this scale is a secondary problem. The primary problem is the urban environment. The trees' health is affected

by air pollution, lack of water, poor soil aeration, compaction, lack of nutrients, soil pH and soil make-up. As they begin to weaken, obscure scales run rampant and further weaken or even kill a tree in just a few years.

Independence National Historical Park, in Philadelphia has a large population of various species of oak trees and most of them are infested with obscure scale. On the average five to ten oak trees are removed yearly because these heavy infestations can't be controlled.

recommended care

When I was the horticulturist for Independence National Historical Park I tried various products and procedures and have adjusted cultural requirements to control scale. Homeowners should consult

Obscure scale is not only difficult to control, it's also difficult to notice. The oak trees are often severely damaged and infested before the gardener identifies the problem.

an arborist to provide the maintenance to keep their oak trees healthy and actively growing. The following recommendations may help urban oak trees tolerate an obscure scale infestation.

1. Most important: keep all trees well watered during dry periods. The homeowner can do this by laying a hose near the base of the tree, turn the water on to a trickle, and let it run for a few hours. The water will slowly percolate down to the roots.

2. Fertilize regularly. I prefer the water soluble formulations that are easy to apply; its nutrients are readily available to the plants. (I use the XL Injecto Feed Tree Food, 32-7-7, Doggett Corporation, Lebanon, New Jersey.) An arborist should apply this formulation using a power sprayer with good mechanical agitation. The solution is injected into the ground using an injector probe at 150-200 pounds of pressure. Starting approximately 2 ft. from the trunk of the tree and extending at least 2 ft. beyond the drip line. The probe will go 8-12 ft. deep and spaced 2-2½ ft. apart. This work can be completed in the early spring or late fall, or early winter. For each inch of trunk diameter, the arborist will use approximately 5 gallons of solution.

3. Sample the soil regularly. Rubble, brick, lime and other debris found in urban areas will raise the pH of the soil making many nutrients unavailable to the oaks. To

lower the pH work ground sulfur into the soil to a depth of 18 in. and over an area wide enough to accommodate the trees' spreading roots. To raise the pH add ground limestone. Homeowners can purchase soil sampling kits from their County Extension Service.

4. Monitor trees/insects carefully and weekly starting in June up until early September. Because these scales and the crawlers are so small, you'll need an arborist or laboratory consulting firm with a high powered microscope to monitor the scales' activity and growth.

5. Keep all oaks pruned and thinned out. This work is best completed by an arborist using the proper safety equipment and pruning techniques. Wind blowing through the trees will help keep some of the scale and other insects from adhering to the twigs as well as allowing chemical sprays to get up into the crown of the tree for more uniform coverage.

6. To control chemically, the certified arborist should start off in early spring with a dormant oil spray, mixing superior oil at the rate of three to four gallons for every 100 gallons of water. The air temperature must be 40° or above. The arborist will push the chemical up to the top of the crown of the affected tree where it will adhere to the insects suffocating them. Spraying should be done on those days in March and April, when there is little or no wind. Listed below are various chemical applications of the second (or mid-July) spraying that I have tried in the past to control the scale crawler.

A. Ethion and oil was applied at the rate of 2½ gallons/100 gallons of water; four days later all the settled crawlers on the open areas were dead, eggs were still present, 60% of settled crawlers under the female shell were still alive. Under heavily caked areas only 40% of the population were dead.

B. Cygon applied at four pints/100 gallons of water killed 95%, but some settled crawlers were alive under the female cover.

C. Dursban mixed at two quarts/100 gallons with an added spreader sticker showed good control on branches that did not have a heavy build-up of old scales. Dursban does provide good residual control also. Crawlers that emerge a few weeks after the spray were killed if they moved out from under the female scale.

D. Bidrin injected into the trees provided some control. Crawlers under the females and the ones that had moved out were all killed, but there was very little residual control, and crawlers that hatched out after the injection were alive. This chemical did

*Spring Meadow Tree and Shrub Laboratory and Consulting Specialists, Glenmoore, Pa.



Obscure scale with scale cover raised to show soft insect body.

not translocate into the larger twigs as I had hoped.

finding the scale

Obscure scale is not only difficult to control, it's also difficult to notice. The oak trees are often severely damaged and infested before the gardener identifies the problem. Obscure scale has become a major pest for urban gardens, and we should be aware of it and keep those oaks actively growing. Alternate and plant a variety of trees and shrubs to limit the host for the insect. Keep our oaks healthy by following the five steps mentioned above. All of these steps must be completed before Step #6, a spray program, is even considered.

If we don't check this insect there will be many more unhealthy, dangerous and dead oak trees throughout the urban setting.

Until the beginning of 1988 Joanne Miller was the horticulturist for Independence National Historical Park in Center City Philadelphia. She is owner and partner in Horticultural Services, a landscape and grounds maintenance company in the center city and suburban areas.



Scale on new growth.

Certified Arborists Program

For information about certified arborists in Pennsylvania contact:

Dave J. Ziegler
P.O. Box 144
Pleasant Gap, PA 16823
814-364-9668

PLANT SOCIETY MEETINGS IN 1988

In the fall of 1987 we invited area plant societies to send us information about one major meeting and one major event they were planning for 1988. We've listed here those Societies that responded. We plan to publish this list annually in the March issue. If you wish to be included in 1989 please send information by November 15, 1988. Please follow the exact format listed below. Write Plant Societies, *Green Scene*, 325 Walnut Street, Philadelphia, PA 19106. This is the only list that will appear in 1988.

AFRICAN VIOLET SOCIETY OF PHILADELPHIA

Annual Show & Plant Sale

April 30, 1-9:30 pm

May 1, 12-4:30

Plymouth Meeting Mall

Plymouth Meeting, PA 19462

Plant Sale

Sept. 16 & 17

"Hometown Fair"

Plymouth Meeting Mall

Contact:

Margaret Cass

920 Andorra Rd

Lafayette Hill, PA 19444

836-5467

or

Mrs. Enid Branson

2026 Pleasant Ave.

Glenside, PA 19038

AZALEA SOCIETY OF AMERICA

10th Annual Convention

May 6-8

Bethesda, MD

Contact:

Glenn Taylor

Post Box 6244 B

Silver Spring, MD 20906

EASTERN CACTUS AND SUCCULENT SOCIETY

6th Eastern Cactus and Succulent Conference, Plant Show & Sale

October 8-10

Baltimore, MD

Contact:

Fred von Behren

C & SS MD

P.O. Box 134

Perry Hall, MD 21128

DELAWARE VALLEY CHRYSANTHEMUM SOCIETY

Annual Show

Oct. 15 & 16

Longwood Gardens

Conservatory

Plant Sale

May 21 & 22

Tyler Arboretum

Painter Rd

Lima, PA

Contact:

Wm. R. MacKinney

535 Woodhaven Rd

West Chester, PA 19382

DELAWARE VALLEY DAFFODIL SOCIETY

Daffodil Show

April 16-17

Longwood Gardens

Kennett Square, PA

Plant Sale

Sept. 28

2201 Kentmere Pkwy.

Wilmington, DE

Contact:

Mrs. Robert Rada, Pres.

1125 Kaolin Rd.

Kennett Square, PA 19348

DELAWARE VALLEY DAYLILY SOCIETY

DVDS Flower Show

July 10, 1-5 pm

Longwood Gardens

Kennett Square, PA

DVDS Plant Sale

Sept. 10, 9-12 am

Tyler Arboretum

Contact:

Dr. Kjell H. Christiansen

Box 20

Glen Mills, PA 19342

or

Dr. George Forsythe

RD 1 Box 277A

Glen Rd. Elf Heim

Landenberg, PA 19350

AMERICAN GLOXINIA AND GESNERIAD SOCIETY

Flower Show "Gesneriads in the Garden State" & Plant Sale

July 8, 3:30-6 pm

July 9, 9-noon

Hyatt Regency Hotel

2 Albany Street

New Brunswick, NJ

Contact:

Jeanne Katzenstein

Flower Show Chairman

1 Hallvard Terrace

Rockaway, NJ 07866

HELICONIA SOCIETY INTERNATIONAL

4th Annual Conference

Time: TBA (summer)

Flamingo Gardens

Ft. Lauderdale, FL 33330

Plant Sale

Time: TBA

Fairchild Tropical

Gardens

Miami, FL

Contact:

Cristina Lindley

P.O. Box 557123

Miami, FL 33255

BALTIMORE HERB SOCIETY

2nd Annual Baltimore Herb Festival

May 28, 10-6 pm

Leakin Park

Baltimore, MD

Contact:

Mary Louise Wolf

2301 Pickwick Rd.

Baltimore, MD 21207

(301) 448-0406

DELAWARE VALLEY UNIT HERB SOCIETY OF AMERICA

Annual Herb Sale & Luncheon

May 21, 10 am-4 pm

Prallsville Mill, Rt. 29

Stockton, NJ

Contact:

Joan Schumacher

HSA

8 Windey Way Lane

Doylestown, PA 18901

PHILADELPHIA UNIT OF HERB SOCIETY OF AMERICA, INC.

50th Anniversary - Herb Sale/Auction

May 12, 10-2 pm

Auction 1 pm

Douglas Farm

Pughtown Rd

Kimberton, PA 19442

Contact:

Mrs. Bryce Douglas

Box 672

Kimberton, PA 19442

SUSQUEHANNA UNIT HERB SOCIETY OF AMERICA

Herb & Geranium Sale

May 7, 10-2 pm,

rain or shine

Rock Ford Plantation

Lancaster, PA 17602

Contact:

Judy Eshleman

HSA

1421 Marietta Ave.

Lancaster, Pa 17603

or

Michele Nutter

3092 Lyndana Dr

Lancaster, PA 17601

(717) 898-0438

POTOMAC UNIT HERB SOCIETY OF AMERICA

Plant Sale

May 7 10-3 pm

US National Arboretum

3501 New York Ave., NE

Washington, DC 20002

Contact:

Judith M. Bloomgarden

Publicity Chairman

2708 Whitney Ave.

Baltimore, MD 21215

MID-ATLANTIC REGIONAL AMERICAN HOSTA SOCIETY

Annual Meeting - Auction

TBA (June or July)

Wilmington, DE

Plant Sale

TBA (June or July)

Contact:

Warren Pollock

AHS

202 Hackney Circle

Surrey Park

Wilmington, DE 19803

IKEBANA INTERNATIONAL PHILADELPHIA CHAPTER

Lecture & Demonstration

with speaker Mrs. Vicki Gausepohl,

Im Wha Kong, Flower Arrangement Society

Mrs. Im's School of Korean Flower Arranging

April 28

Memorial Library of Radnor

Wayne, PA

Contact:

Mrs. William Douglas

57 Allendale Rd

Philadelphia, PA 19151

DELAWARE VALLEY IRIS SOCIETY

Iris Show

May 21

Concord Mall

Wilmington, DE

Plant Sale

July 16

Tyler Arboretum

Lima, PA

Contact:

Mrs. Arthur F. Martin

Publicity Chairman

116 Meridian Drive

Hockessin, DE 19707

(302) 998-2414

DIAMOND STATE IRIS SOCIETY

Iris Show

May 22

Dover Mall

Dover, DE

Plant Sale

July 9

Boscov's Department

Store

Dover Mall

Dover, DE

Contact:

Mrs. Arthur F. Martin

President

116 Meridian Drive

Hockessin, DE 19707

(302) 998-2414



David Everett of Enfield, England, points out variegated foliage on nuphar at mist-shrouded Nymph Lake high in the Rocky Mountains during the Annual Water Lily Symposium in 1987.

MIDDLE ATLANTIC REGIONAL LILY GROUP
Annual Lily Show
 June 25-26
 Longwood Gardens

Plant Sale
 October 30
 1012 Westview St.
 Phila. PA 19119
 1:30 pm

Contact:
 Kathryn Andersen
 7 Perth Drive
 Wilmington, DE 19803

MARIGOLD SOCIETY OF AMERICA
Annual meeting plans not yet finalized

Contact:
 Jeannette Lowe, Secretary
 394 West Court St
 Doylestown, PA 18901

CENTER CITY ORCHID SOCIETY
Meeting

Mr. John Leonard, Speaker
 "Growing Orchids"
 April 18, 6:30 pm
 Ayer Building
 210 West Washington Square
 Philadelphia, PA

Meeting to learn the intricacies of potting orchids
 May 16, 6:30 pm
 Ayer Building

Contact:
 Mrs. Lothaine Pinnick
 CCOS
 1000 Valley Forge Cir.
 King of Prussia, PA 19406
 1-783-7189
 after 6 pm

GREATER PHILADELPHIA ORCHID SOCIETY

Orchid Plant Auction
 Sept. 22, 8 pm
 Merion Friends
 Activity Center
 615 Montgomery Ave.
 Merion, PA

Contact:
 Lois Duffin
 7411 Boyer St.
 Philadelphia, PA 19119

SOUTHEASTERN PENNSYLVANIA ORCHID SOCIETY

Monthly Meeting
 2nd Wednesday
 All Saints Church
 Montgomery Ave
 Wynnwood, PA

Annual Auction
 2nd Wednesday in
 November
 All Saints Church
 Montgomery Ave
 Wynnwood, PA

Contact:
 Mrs. Curtis Cheyney III
 SPOS
 205 Whitmarsh Rd
 Ardmore PA 19003

PERENNIAL PLANT ASSOCIATION
Sixth Perennial Plant Symposium

August 1-5
 Portland Hilton Hotel
 Portland, OR

Contact:
 Dr. Steven M. Still
 217 Howlett Hall
 2001 Fyffe Court
 Columbus, OH 43210

AMERICAN RHODODENDRON SOCIETY
44th Annual Convention & Plant Sale

May 11-15
 Williamsburg, VA

Contact:
 Barbara Hall
 Convention Director
 P.O. Box 864
 Gloucester VA 23061
 (804)693-4433

AMERICAN RHODODENDRON SOCIETY, VALLEY FORGE CHAPTER

Garden Tours & Picnic
 May 21
 Map by Francis Raughley
 212 Foulk Rd
 Wilmington, DE 19801

Plant Sale
 May 7
 Jenkins Arboretum
 631 Berwyn Baptist Rd.
 Devon, PA

Contact:
 Fred S. Winter, MD
 Company Farm
 936 Shenkel Rd
 Pottstown, PA 19464
 (215) 326-7354

AMERICAN RHODODENDRON SOCIETY, PHILADELPHIA CHAPTER

Monthly Members Meeting
 2nd Thursday
 Sept., Oct., Nov., Jan., Feb
 Fairmount Park Horticultural Ctr.
 Fairmount Park, Philadelphia, PA

Plant Sale
 May 14 10-4:30
 Tyler Arboretum
 Lima, PA

Contact:
 Dan Layman
 212 Almur Lane
 Wynnwood, PA 19096

AMERICAN RHODODENDRON SOCIETY, PINE BARRENS CHAPTER

Monthly Members Meeting
 4th Tuesday, 8 pm
 Sept.-Nov., Jan-Jun
 Atlantic County Library
 Hammonton, NJ

Plant Sale
 Sept TBA in Meeting or
 contact Ray Rhoads

Contact:
 Ray Rhoads
 726 Upton Way
 Somerdale, NJ 08083

HARRISBURG ROSE SOCIETY
Annual Rose Show

June 4
 Camphill Shopping Mall
 Camphill, PA
 Entries received 7-10 am

Contact:
 Mrs. Jayne Shipman
 106 W. Main St.
 Shiremanstown, PA 17011

PHILADELPHIA ROSE SOCIETY

Annual Rose Show
 June 4, 2-9 pm
 Plymouth Meeting Mall
 Germantown Pike
 Norristown Exit of Pa Tnpk
 Entries open to public

Monthly Meetings
 1st Thursday 8 pm
 Mary H. Wood Park
 House
 120 E. 5th Ave
 Conshohocken, PA

Contact:
 Mrs. Donald H. Pitkin, Pres
 923 Springwood Dr
 West Chester, PA 19382
 (215)692-4076

DELAWARE VALLEY WATER GARDEN SOCIETY
We're Building a Pond

April 23, 1 pm
 Vollmake Farm
 RD#7 Box 107B
 Cedar Knoll Rd
 Coatesville, PA 19320

Contact:
 Joan Nangle
 201 State Rd.
 Media, PA 19063


WATER LILY SOCIETY

4th Annual Water Lily Symposium & Garden Tour
 July 31-Aug 14
 Harrowgate, England

Contact:
 Charles Thomas/Virginia Thomas
 P.O. Box 104
 Buckeystown, MD 21717



More About the Gorgeous Eggplant: Ichiban

 by Joan Z. Brinton

My favorite variety of eggplant was not included in the Great Eggplant Praising that was published in the fall issue of *Green Scene*. I have tried Black Beauty, the Bride, the Egg etc. But Ichiban, an oriental variety obtained from Nicholas Garden Nursery (1190 N. Pacific Hwy., Albany, Oregon 97321) has been successful over the last 15 years in two very different vegetable gardens and is the **best**. It is a perfect container grown vegetable as well. Cylindrical, 6-8-10" long, depending on the rain and sun, 3 to 3½" wide, shining purple, thin skinned, prolific with up to 8-10 eggplant on a single plant during the season, easily

staked or caged, this is a well-mannered garden adornment that is the best eating as well.

RECIPE: Martha's Eggplant from Harvest Show star arranger, Martha Clark. Don't peel, simply slice thinly or thickly, spread on a greased cookie sheet, drizzle or brush on melted butter or olive oil in combination with any herbs or spices of your choice, bake 15 to 25 mins. (depending on thickness at 350°. A final optional touch is to top with a butter parsley bread crumb mixture that is then browned under broiler for 2-3 mins. EASY not greasy.

Toni Brinton is former chair of PHS Library Committee and an exhibitor in the Philadelphia Flower Show and the Harvest Show.

Help Me to Find the Jujube Tree

 by Halfred W. Wertz

An excellent tree, the jujube or Chinese date tree (*Ziziphus jujuba*) is relatively rare in Pennsylvania. Through my source I have been able to track only 30. I believe that locating those that have survived in this area would give us information that would lead to developing superior clones and a diversified genetic pool. Hardier strains would emerge as we planted more jujubes in the three hardiness zones in Pennsylvania. So I'm asking your help in finding as many jujubes in Pennsylvania as possible.

This tree, probably native to Syria, spread to Palestine, and to all of the countries bordering the Mediterranean Sea, and eventually to China. Introduced into the United States from China in 1837 at Beaufort, North Carolina, it also came to California from France. Commercial growers are now located in Virginia, Florida, Louisiana, California, and Oregon.

I am drawn to the jujube by its adaptability to diverse growing conditions of several continents and by its unique features — the delicate greenish flowers about one-eighth inch in diameter, the shiny leaves, and the short spiny projections on the immature twigs, which gradually disappear as the young tree grows. I wonder if this latter feature may be the mechanism that evolved to protect its leaves from being eaten.

Jujubes appear to be free of insects and pests. My tree requires no spraying and the fruit has no blemishes. The fruit is nearly as large as a golf ball, and resembles a date in appearance and taste. We dip the fruit into a glazing solution of sugar or light corn syrup. As this tree spreads, the wildlife of our Pennsylvania forests may also enjoy it.

Today, in China, hundreds of varieties that have been developed and cultivated for centuries exist in large orchards. They tolerate dry and hot conditions and are used as ornamentals, because of their unusually glossy leaves. The mature height is about 30 feet.

Jujube locations in Pennsylvania include:

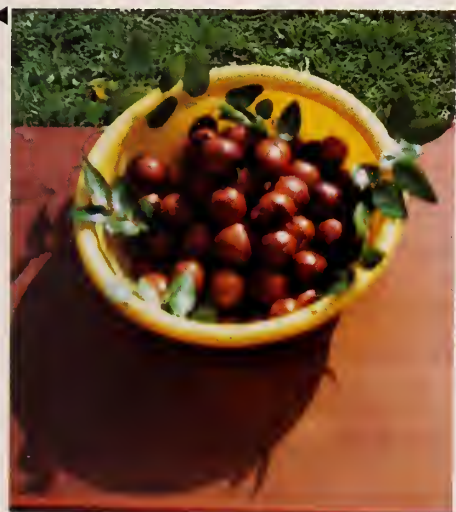
1. Bartram's Garden, Philadelphia, Pa.
2. Lennilea Farm Nursery, Alburtis, Pa.
3. Longwood Gardens, Kennett Square, Pa.
4. Morris Arboretum of the University of Pennsylvania, Philadelphia, Pa.
5. Upper Bank Nurseries, Media, Pa.
6. Welkinweir, Natural Lands Trust, Pottstown, Pa.



photo by Joan Z. Brinton



Jujube in Mechanicsburg, PA.



Chinese dates

Cooperating with the project are: North American Fruit Explorers, Pennsylvania Nut Growers Association, Pennsylvania Forestry Association

If you own one or more jujube trees of any age or if you know about jujubes owned by others would you please contact me? I will send an information survey form if you will write or call me: Halfred W. Wertz, 28 De Walt Drive, Mechanicsburg, Pa. 17055. Phone: 717-697-0419.

Halfred W. Wertz is a past president of the Pennsylvania Forestry Association and currently serves as an honorary vice-president of the Association. He is also a member of the American Forestry Association and the North American Fruit Explorers. He co-authors *Penn's Woods, 1682-1982*. He has a jujube tree that was grafted in 1987 with scions from two trees in separate parts of Pennsylvania. He is experimenting with propagating jujubes by mound layering procedures.

Torenia Triumphant in a Shady Garden



by Elizabeth Baxter Derbyshire

Are you looking for an annual that will add a new dimension to a shady spot in your summer garden, one that will give you good performance with bloom and color for three months?

Try my favorite, *Torenia fournieri*.

Torenia, wishbone flower, is not a new annual in the garden. It just hasn't received the publicity it so well deserves. The seed is tiny and germination can be difficult, but I find buying two or three market pacs in May gives me three months of enjoyment. It will reseed itself if the ground is left undisturbed until early June.

An interesting feature of the *torenia* is the manner in which it grows. From the single stem seedling in May, the stems grow outward and upward to about 12-15 inches and yet remain a compact clump. In the autumn garden the foliage turns a delicate mahogany and the segmented seed pods become a light tan color.

Bloom and color are unique. The *torenia*, a member of the snapdragon family (*Scrophulariaceae*) has a flower similar

to the snapdragon but smaller in size. The upper lip of the flower is a delicate pale violet with the three lobed lower lip a deeper purplish blue color with a velvet texture; the throat of the flower a bright yellow, makes it a natural attractive mechanism for insect pollination. Each flower measures about three quarters of an inch, and each spike holds three or four irregular flowers. The flowers last for a week or more and serve well as cut flowers.

As far as cultural requirements, the *torenia* performs well in any good garden loam and prefers a shady situation with adequate moisture, which I provide with a good mulch to keep the soil from drying out.

Torenia adds a great deal of charm to my garden, whether mixed with ferns, perennials or with my favorite begonias and impatiens. *Torenia* with its color, texture, and pattern gives a new dimension to any garden.

Elizabeth Baxter Derbyshire worked in environmental education at Bowman's Hill Wildflower Preserve and the Morris Arboretum. She has been a field trip leader to the Pennsylvania Horticultural Society and the Wyncote chapter of National Audubon Society.



photo by Elizabeth Derbyshire

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Correction:

January/February issue, **Biological Pest Control** by John Cozza, p. 16.

We regret that the first column on page 16 was scrambled, and we've printed it below as it should have appeared. If you are interested in the complete text of the article we will be happy to send a xeroxed copy, if you send a self-addressed envelope to *Green Scene*, PHS, 325 Walnut St., Philadelphia, PA 19106. Thank you. Jean Byrne

My experience with soap sprays had shown them to be about as effective at killing plants as pests, so one day I decided to order some ladybugs. These are sold by several companies in California—the one I use is Unique Insect Control* in Sacramento—and come ready-to-use in a little sack. Or, with a few drops of water and a spot in the refrigerator (don't forget to inform the other members of the household), they will keep in a dormant state for about a week. The ladybugs are scattered amongst the plants in the evening (they won't fly away at night) after sprinkling the leaves with water (for the ladybugs to drink). I released my ladybugs in groups over a period of several days, and soon began to notice a lessening of the aphid population. Unfortunately, many of the ladybugs didn't hang around for very long, preferring, it seemed, to eat and run. In a

less harsh environment and especially a larger garden, I feel they would be more permanent residents.

This past spring, while trying to attain longer-lasting control, I decided to supplement the ladybugs with lacewings and praying mantises. Both are supplied in egg form, which makes them easy to store and apply. The lacewing eggs hatched into wingless (meaning they stay put) larvae, which I saw zipping around on leaves and stems as they hunted for aphids. The praying mantises worked out the best for me, starting out as tiny aphid predators in the spring, then growing and moving on to bigger food as summer wore on and the heat largely kept the aphids in check. Even when nearly full-grown, the mantises were remarkable homebodies, remaining in territories as small as half-barrel container gardens.

the plant finder

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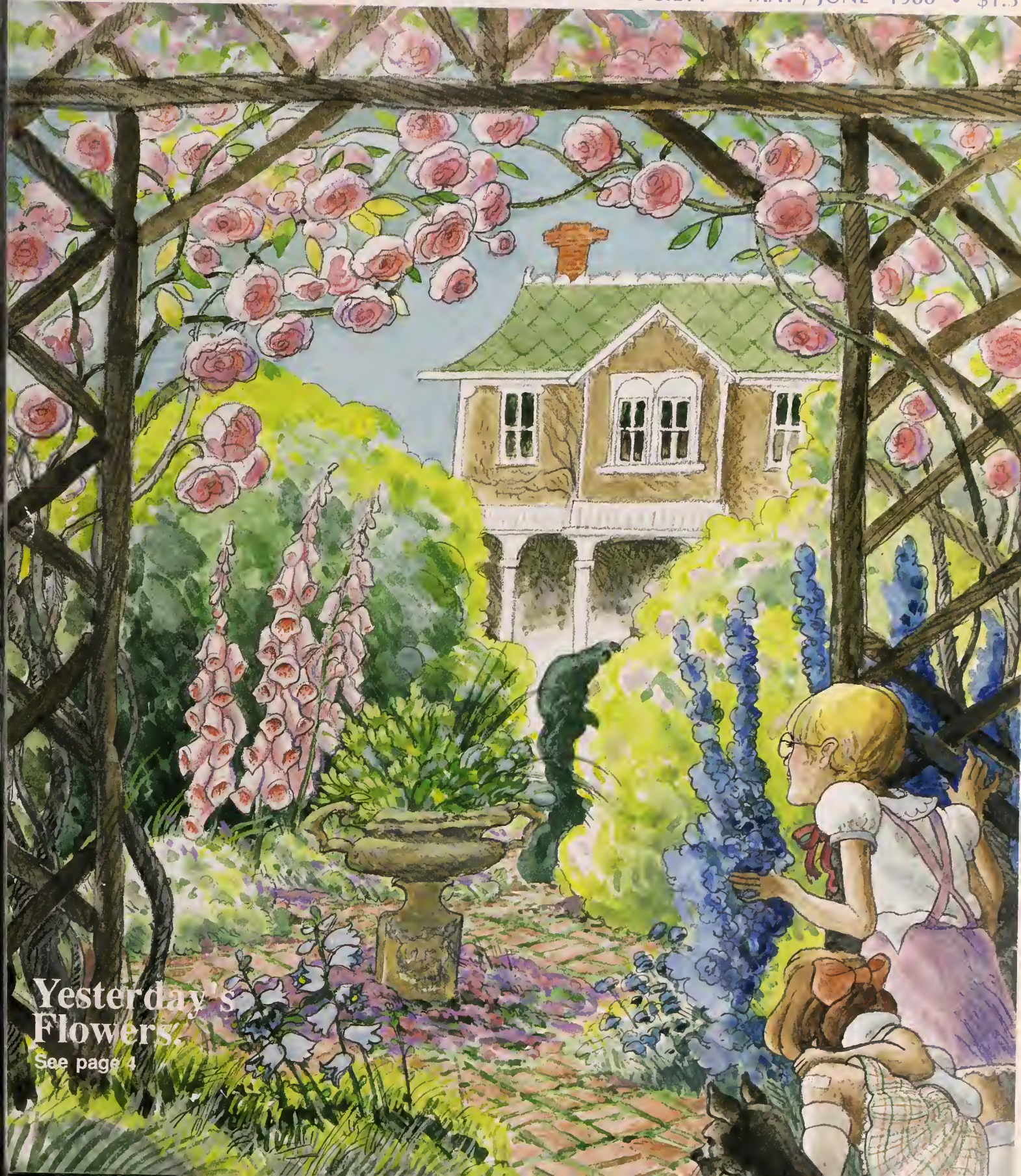
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A tot sets out to find the bear Dewey in the Children's Tea Garden at Longwood Gardens for an afternoon break. See page 14

GREEN SCENE

THE MAGAZINE OF THE PENNSYLVANIA HORTICULTURAL SOCIETY • MAY / JUNE 1988 • \$1.50



Yesterday's
Flowers

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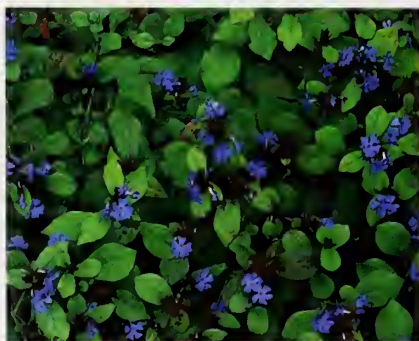
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illustration by Barbara Bruno

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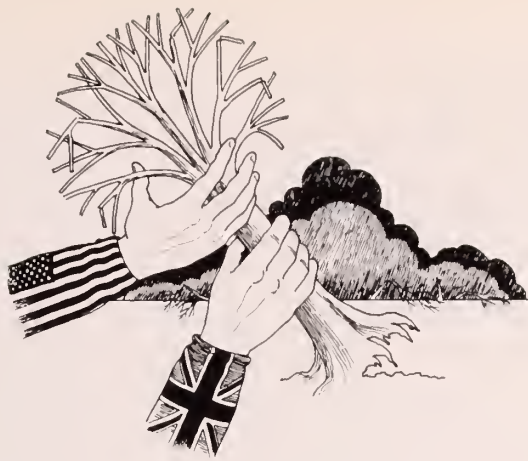
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NO GARDEN ON AN ISLAND IS ENTIRE OF ITSELF

(with apologies to John Donne)

by Jean Byrne

Why is a regional magazine on the East Coast of the United States covering the story of storm-devasted gardens in England? Why would the Pennsylvania Horticultural Society and Morris Arboretum team up to send four arborists over to Wakehurst, Kew's sister garden in Sussex, to help with the clean-up? Because Philadelphia has rich historical links with Great Britain, that's why. Starting with William Penn. And continuing with John Bartram's correspondence and seed exchanges with Peter Collinson, and Lydia Morris's wish to create an English garden in Chestnut Hill when she and her brother, John T., were settling down there.

So it's really no surprise that Jane Pepper, president of the Pennsylvania Horticultural Society and William Klein, director of the Morris Arboretum of the University of Pennsylvania decided to do something when news reached them that 15 million trees were downed in England in six hours. Judy Foley tells the story about the storm and the way Philadelphians reached out to help. Sending the four arborists to help with the clean-up at Wakehurst was "a smashing success," according to Klein. In a letter to Pepper, he wrote that the joint sponsorship was "an appropriate and timely response to a crisis and was deeply appreciated by our friends and colleagues in England. . . I want to thank you personally for being willing to take the plunge with us on this project. . . You are a pleasure to do business with."

This issue of *Green Scene* is bursting at the seams: we've added four pages and put two stories on hold. We welcome two new writers to our pages; the first Kristi Jalics from Ohio, who tells us how three absentee gardeners manage to have it all, while summering away from their gardens. And the second, Michael Howell, whose beautiful container-grown fuchsias drew our attention at the Harvest Show and whose orchids certainly drew the judges' attention at the Philadelphia Flower Show this year. Michael tells which fuchsias will survive this area's summer heat. We hope we'll be hearing from these exuberant gardeners often — and invite any of you writers/growers who have been hiding your light under a bushel to join them in future issues. And for the voyeur among us who wonder what highly trained horticulturists who work in some of the finest gardens in the country do when they go home, we offer a look at Rick Darke's and Claire Sawyers's personal garden; they work at Longwood Gardens and Mt. Cuba respectively. Natalie Kempner, who has long been on hand to support and encourage Philadelphia Green's growth, has along the way begun to emerge as their Boswell. She records here Philadelphia Green's Juanita Wooten's remarkable process of collaborating with public housing residents to start gardens in the projects. And finally, Lauren Springer who made her debut in these pages with the well-received story about the under-used shrub roses offers another article many gardeners will want to keep as a valuable resource: choice perennials for shady gardens.



illustrations by Barbara Bruno

YESTERDAY'S FLOWERS

Gardening with Salvaged Plants

 by Barbara Bruno

Passing through a once thriving neighborhood the commuter notices a spray of extraordinary blossoms, the fragrant and luminous fruit of a single, gnarled cane arching from matted shrubbery. Could this antiquity be kin to the catalog beauty he just ordered?

Scores of these castoffs languish in weed fringed anonymity. They comprise an imperiled remnant of splendid garden history. In some cases they are unique survivors, sole reminders of vanished cultivars, flowers whose beauty and utility were celebrated by laureates of our botanical past.

My affection for yesterday's flowers began in an old garden. Its overgrown perimeter lay within sight of our tidy duplexes, just beyond the postage stamp confines of backyards, on the far side of an alley fence. Whenever we dared, my

friends and I braved rusty nails and wayward pickets poised beneath runaway vine. Beyond the tangle, yet still obediently within hearing of mother's shrill calls, we thrilled to the unknown, in a genteel, flowery, half wilderness once locally acknowledged as the "height of garden artistry."

The garden still testified to its creator's enthusiasm for the entire floral kingdom. The latest plant sensation, the horticultural rarity, and the cheerfully common posy all had been welcomed into the crowded patchwork of her borders and, seemingly, were all equally adored. The grounds were vibrant with their unruly bloom a decade after the garden maker had laid down her trowel. Shrubberies, rockeries, and assorted borders were colorful, jumbled catalogs of yet older varieties.

At first we hardly noticed. We were agog

at the decorative features locally called "garden novelties." These ornamental flourishes were as grand and numerous as the purse of a small town doctor's wife allowed. Set in cozy proximity, colonades and bowered garden gates framed still-flowery vistas. Within a towering lilac hedge a child-sized iron stag, perfect in noble detail, guarded a pocket handkerchief lawn grown seedy with wildflowers. Brick walks encircled tiered and turreted bird-baths and led through a mock orange thicket to a twiggly summerhouse smothered in creepers. Inside, the green gloom was lair to an eerie gathering of spiders. Cement statuettes delighted us at every turn. Our favorite, a water sprite, knelt by a tiny bridge where only an occasional goldfish rippled dark water reflecting a disorderly cascade of roses.

We played undetected among blossoms remains in what seemed our private, moldering Eden. One ritual we relished involved the decaying carcass of an enormous wisteria that had long ago sunk from its carriage house moorings. In time its looping limbs meshed into a viney tunnel. Each spring, summoned forth from fragile heartwood, an exotic excess of bloom filled the corridor with color, fragrance, and frenetic bees. Being youngest, I was elected to go first. Summoning courage — hunched, half crawling — I made my heady rite of passage through pendant bloom, urged on by the close, ecstatic whine of foraging bees. To celebrate we adjourned not far beyond where, sheltered by a stretch of sprung and peeling latticework that separated kitchen garden from adjoining niceties, we ate violet leaf salads liberally laced with a tang of wild garlic.

On summer mornings we set up house-keeping with dolls and tea sets, each picking some discrete and flowery thicket. My choice was always a grotto in a rosebush increasingly mired in honeysuckle. Canes heavy with bloom made swaying curtains for window and door. Unlike their sculpted progeny, they were a fragrant June tide — profuse, deeply globular flowers enfolding glowing pink hearts. Such flowers, beloved of courtier and cottage gardener, depicted in lush perfection by Dutch painters, passed almost unnoticed in this garden,

languidly carpeting my hideaway in redolent pink.

In hot weather we found sanctuary beside the leaf choked pool. We frittered breezeless afternoons there decorating fuzzy mullein leaf "chapeaus" from a stock of seasonal blossoms: corncockle's feverish pink flowers and hoary leaves, silk petaled poppies, garlands of hollyhocks and

We ate violet leaf salads liberally laced with a tang of wild garlic.

honeysuckle, and vigorous blue larkspur that dominated the rangy rabble self-sown in crumbling brick walks.

I later realized that those years of neglect had performed a minor miracle, amiably altering — you might say, beatifying — that old place. Like fine wine, in repose the garden mysteriously became more than the sum of its disjointed parts. Decorative excess fell into endearing decrepitude. Time reduced gaudy plasterworks to pale, romantic foibles. Left to themselves, plants performed a flowery benediction. In crowded beds where notables had bloomed in edgy combination, discord was muffled by a starry haze of wildlings. Unthwarted by these tasselly weeds, survivors flowered with youthful fervor, their blossoms rich in perfume and antique grace. From humbler quarters came ancient

domestics of forgotten usage: salvant, balm, and physic; talisman, love charm of goatherd and shepherdess. These flowers thrived in unexpected harmony with wild interloper and grand antiquity, scattering springs of homey bloom through once formal settings.

When I came at last to own a neglected acreage, memories of that old garden surfaced to shape a plan. My borders would be rich in extravagant old flowers that were once a garden maker's delight. Simple flowers would thread a rustic embroidery among the grander plants. Paths would be hemmed with aromatics as irresistible to bees as was the crumbling Eden's wisteria. Above all, the glory of my garden would be profusion of those old flowers esteemed for grace, appealing texture, and hearty bouquet, rather than for modern virtues of size or sensational color.

Frustration followed. Longed-for effects remained palmy visions since the prerequisites had been dropped from tradesmen's inventories. Seed packets no longer celebrated the sweet lilt of 'lords and ladies,' 'lad's love,' and 'kiss-me-quick.' Other plants, catching the hybridizer's eye, seemed "improved" past recognition — decked in comic strip chromatics or consigned enormous blossoms displaying row-of-lollipops uniformity. Modern roses bore little likeness to those unfolding in memory. Grand iris hardly seemed kindred to remembered kinds — delicate of stem and bloom, their pastel falls often washed or netted in cinnamon.

Those old dependables had begun to fade from nurserymen's lists in the last century as selective breeding picked up steam. A human penchant for the new hastened their departure. As perpetual bloomers indulged gardeners with the novelty of recurrent bursts of flowers, they also captivated plant fanciers with heretofore unimagined spectacle. With a wave of the hybridist's pollen brush, blossoms expanded to saucer size, floral tints approached the pyrotechnic. In a few seasons the amiability of yesterday's notables no longer gratified a public grown used to the bigger, the brighter. At the same time, modern flower seed economics restricted the availability of quaint types by limiting offerings to best selling varieties.

Could I Beg a Cutting? Would it Root?

In time, choosing among offerings touted in glossy catalog jargon, I pleasingly approximated my goal. As the scheme was refined, my thoughts returned to the crinolined rose and the scented pink cave at its heart. How satisfying would be the spectacle of that old love flouncing its lavish

continued



bloom among the mail order brides of my June border. Would a pilgrimage reveal the bush, ancient even in memory, still to be alive? Could I beg a cutting? Would it root?

I arrived at the site. Asphalt had supplanted the former profusion. The lot's far border, where the carriage house once stood, sheltered the only green, a trampled verge of city weeds. At a final, dispirited farewell glance, the unmistakable signature of notched leaves and forbidding prickles flashed from worn stubble. Could the venerable bush have been overridden, uprooted, then buried by a leveling bulldozer, only to leafily prevail? Skeptically, I hustled my prize home.

When elapsing seasons produced a feast of familiar blooms it struck me that other castoffs might persevere where chance had abandoned them. Overnight, the wayside became a nursery. I dared not dismiss roadside frowse or flyblown alley without scrutiny; neglected treasures might star the strangest stubble. Shopping trips metamorphosed into botanical quests. Aging neighborhoods demanded investigation. A new boldness goaded me up to unfamiliar doorways to ask about a compelling green form glimpsed over a garden gate. I often left bearing not only cuttings or wisps of rooted green wrapped in dampened newspaper, but with remnants of plantlore fondly recollected by the seasoned gardener. A long forgotten anecdote might point to fresh discoveries. A revealing local nickname or some shard of horticultural arcanum might extend my knowledge of the scattered local vintage plants.

I discovered that although many plants still adorn gardens where generations delighted to establish them, some free spirits had not long remained cloistered. Wafted far on silken parachutes, aeronautical offspring soon whipstitched the countryside with the starry cosmos of their bloom. Others dependent on underground gropings debouched surprising distances across jet age landscape.

The democratic tangle of the wayside is a favorite haunt for many old plants. *Lychnis coronaria* the silver leaved rose campion blooms there far from old dwellings, but I first encountered this plant in a library, its description couched in the sweet gravity of line and phrase that singularizes old herbals. After untold journeys down the ages, it came from the wayside into my garden where it still displays a rough elegance redolent of thatched roof and

growing in red and pink valentine harmony with *Valeriana officinalis*. The sweet scented patches of this heirloom were fittingly baptized "cherry pie" by our keen nosed grandmothers.

other hobo plants

I detour each spring along a back road to where old garden familiars called "Confederate violets" make swathes of palest blue like bits of spring sky come to earth among abandoned daffodils. These simple flowers of heart-stopping beauty were so named when they abundantly appeared on the fresh earth of battlefield graves. On other tiny graves of last century's "Too Soon Departed" cypress spurge (*Euphorbia cyparissias*) still stands guard where it was once planted. A far cry from this melancholy duty, each spring feathery mats of this most Victorian greenery spreads blithe chartreuse bloom along a rural hedgerow. I often wonder how it got there.

It is not the only former resident of old gardens to pursue a hobo existence. In my neck of the woods forgotten "sovereign remedies" of the herbalist grow with aromatic vigor among field daisies. Catnip and fennel dot my neighborhood.

Square yards of mint shoulder native greenery in drainage ditches. Other less adventurous hangers-on share the solitude surrounding some blank farmhouse.

Quaint forms of pinks in perfumed, free blooming patches spread silver mats among limey rubble, and lemon lilies open admirably scented, moonbeamy chalices that surpass in appeal for me the flat faces of many new cultivars.

Roses, supremely loved among flowers, seem to be the most indomitable of survivors. I once discovered a gnarled knot, remains of a venerable bush whose stump the size of a bushel basket, had lately been hacked at, set on fire, and left for dead. Months later, ushered on by a June morning's urging, the stump once again thrust fragile shoots from its greenwood heart. Witness also the verdant optimism of wayside roses in a seemingly unwinnable contest with the modern grim reaper, the indiscriminate sweep of the roadside mowing machine.

It is no surprise that this cherished plant existed in great variety. That so many have



Illustration by Barbara Bruno

lace ruff. *Saponaria officinalis* is another roadside souvenir of antique gardens. Our "bouncing bet" was "soapwort" to colonial dames, a handy source of lather planted just outside the cottage door. Is its former usefulness the reason that it is as likely to decorate urban weed fringes well as the hay perfumed verge of a country lane where I first found it? The double form of this vigorous wayfarer was a cottage garden favorite. Its soft pink blossoms full petalled as powder puffs will occasionally surprise the floral sleuth. Aromatic native beebalms, the *Monarda*, became new world curiosities of castle gardens. The plants returned to our shores in new brilliance to again enchant hummingbirds in sundappled strips of bottomland. I once discovered it there,



Cascading roses and other old plants silhouetted in the hazy gold of a late June afternoon.

persevered, far more kinds than the rosters of specialist growers suggest, is a little appreciated bonanza for flower lovers. I know that neglected treasures survive, having salvaged many. Countless others as distinctive as any offered by commerce are yet to be brought to light. Marking the grave of some "Dear Departed," hidden away in backwater flower patches, or fending amid encroaching wilds of abandoned plantings, they await reinstatement or extinction.

Iris also have a knack for surviving. Tenacious clumps still proliferate among pottery shards and china blue refuse edging many derelict dwellings. These showy flowers have had devotees throughout history. They still command an enraputred

following. I once stumbled upon a backyard awash in rainbow bloom — the prized

I detour each spring along a back road to where old garden familiars called "Confederate violets" make swathes of palest blue like bits of spring sky come to earth among abandoned daffodils. These simple flowers of heart-stopping beauty were so named when they abundantly appeared on the fresh earth of battlefield graves.

acquisitions of an iris fancier's lifetime. Willowy old iris seem easier to integrate into the garden than newer kinds. The old ones

lack the tendency of their enormous, thick stemmed offspring to overpower any setting where they are included, and their soft colors help blend flower tones.

You will find many owners generous in sparing cuttings or even a rooted start of some desired plant. Others might offer to trade plants. Purchasing a start of the coveted flower is always a possibility. (No doubt the floral inebriate need all these options.)

Gaining possession of the green sprig is only a first step toward plentiful bloom. Producing new specimens is not difficult, and roses, most desired of old flowers, are among the easiest of woody plants to propagate. Many bushes provide ready-made new plants in their copious off-

continued



A graceful burnt orange iris blooms with a tall, small flowered picotee that looks especially lovely massed against dark backgrounds.

shoots, but permission to dig starts is not always forthcoming. Usually, the request to take a few cuttings is graciously granted. By lucky circumstance, the season of bloom is auspicious for rooting, the stem below a full blown rose, a willing candidate. The time-honored method of rooting under a jar still works well. Pull, don't cut, a stem from the plant. Remove the spent blossoms. Place the cutting stripped of all but two or three top leaves in a hole dibbled in partly shaded, moist earth. The soil may be improved by mixing one part peatmoss and an equal amount of perlite with the soil. Cover the cutting with a large clear glass jar. Water as needed until new growth appears, then remove the jar for longer periods each day until the plant can survive

in the open.

Today's seed distributors, sensing a budding nostalgic interest in old plants, offer heirloom varieties in modest numbers. Growers of period greenery broaden the range of choices each year. So why bother to search for wayward examples of yesterday's flowers? Each season expands the lexicon of destruction for these beleaguered plants. Many intrepid hangers-on are replaced by construction, like one nectar scented moss rose I knew of, uprooted to make way for a garage. Quantities of other specimens are mowed down in less time than is needed to properly plant one shrub. Daily, octogenarians surviving peaceful decades as guardians of mossy tombstones or as ornaments of municipal

plantings fall prey to maintenance costs. It is cheaper to mow many acres in a few passes than to trim around prickly bushes and flowering perennials. I mourn exquisite specimens routinely deleted from the ranks of our floral heritage. Some salvaged plants display their unique charm as my garden unfolds its pageant of botanical ruffles and flourishes. Many equally worthy cultivars eluded propagation attempts. They may have vanished forever unless a second example comes to light in another weed filled-greed wasteland.

Profuse and evocative bloom is one premium these derelicts offer the gardener. Economy is another; the flowers can be enjoyed for free. A third lure: having proved themselves over decades of horticultural eclipse, neighborhood specimens will be adapted to local vagaries of soil and weather and so, dependably hardy and disease resistant.

These plants ask little in return for their affable displays. A mellow root run, room to grow, and occasional sprinklings from the fertilizer bag seem fair trade for their largess. Yet most gardeners overlook their possibilities. Novelty beguiles, but surely there is space in most gardens for a few neglected posies. Survival of vintage flowers depends on conservation.

Seed Sources for "Yesterday's Flowers"

Old fashioned flower seed is hard to come by. In general look for smaller flowered varieties, the fragrant, the non-hybrid. Also try wildflower and herb seed catalogs for unimproved types.

Many nurseries now offer old roses. "Roses of Yesterday and Today," Brown's Valley Rd., Watsonville, CA 95076 offers a lush catalog for \$2.00 that is a splendid introduction to available kinds. Joseph J. Kern Rose Nursery, Box 33, Mentor, OH 44060 has an extensive list.

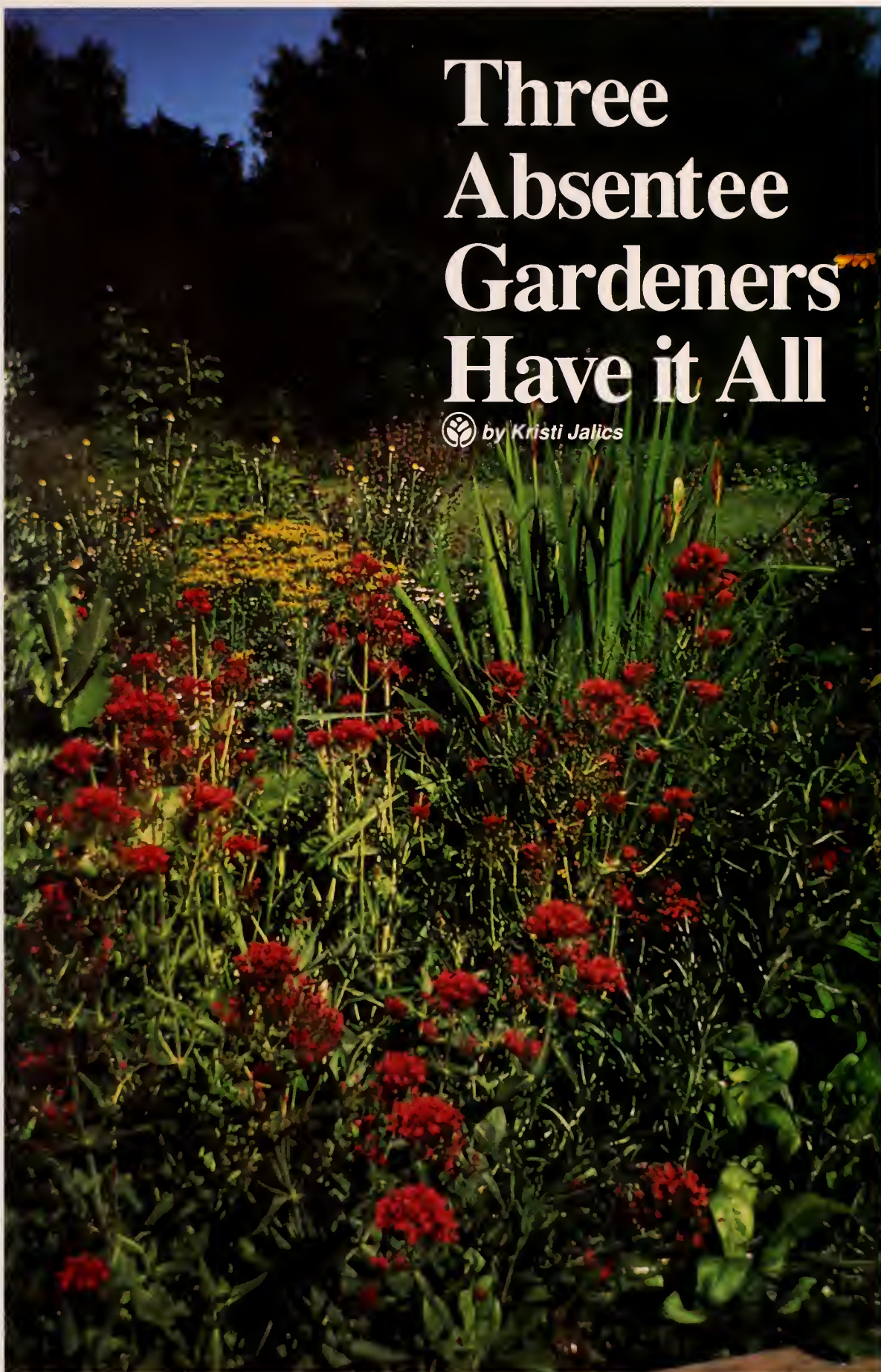
Note: Check current catalogs to verify address and price. It's been years since I've ordered from either one.

Barbara Bruno divides her time between art, writing and gardening. She has several books to her credit and has written and illustrated over 80 magazine articles for adults and children.

photo by Kristi Jalics

Three Absentee Gardeners Have it All

 by Kristi Jalics



A warm corner of Kristi Jalic's Ohio garden in late May, before she leaves for New York State for the summer. It's already too full of plants for the absentee gardener.

Nine years ago when my husband Paul and I bought a house with an acre and a half of land in Bath Township, Ohio, we moved in with, among other things, two trailer loads of favorite perennials that we could not leave behind. They were temporarily lined out in the kitchen garden, the only prepared bed on the property. Despite the two hail storms that marked our arrival, the plants and I survived jubilantly. I was thrilled with the friable, fertile soil; pigs had been raised on the property for years, and horse manure and leaves were plowed under in the vegetable garden for several seasons. Already a wild-eyed gardening maniac, I was filled with unrealistic but delightful plans for the garden that was to be.

The next spring we bought a summer cottage at Point Chautauqua in western New York. I have never spent a summer in Ohio since, and have had to learn to be a very different sort of gardener. (A frustrated one, I am tempted to say, but it's not quite true.)

I have had to abandon my desire for traditional English borders. Set in our country lawn (read "weedy") the beds became overrun with witch grass while I was in New York. A rock garden on which I expended a great deal of labor turned out to be even more of a fool's dream; rock gardens are really not for absentee gardeners. I planted that crescent shaped slope with small

evergreens and shrubs for spring and fall interest, underplanted with *Alchemilla mollis* and divisions of a true geranium given me by a friend who had no idea of its name. As the rock outcroppings became covered with vegetation, I stopped sighing every time I walked by.

Still, I was determined to have all the flowers I wanted in the spring and fall. Using ideas from high-yield vegetable gardening, I came up with a plan that produced a garden whose look reminded me of eighteenth century Dutch or English gardens, but that could be left without disaster for weeks at a time.

In the back yard, centered on the view from the sunroom where we spend most of our time, we removed grass from an area about 35' wide and 65' deep. On the part of this rectangle most distant from the house, Paul built a simple arbor of Wolmanized (pressure-treated) lumber set in concrete. Concord grapes are grown on five of the six pillars and cover the top of the arbor very well, shading the picnic table beneath. Against the central pillar facing the house three New Dawn climbing roses are also doing well, and the arbor is extended at the two front corners by two *Rosa Rugosa* 'Rubra.' (Alas, one was supposed to be a white but after waiting three years to see the first flower this was found not to be the case.) The 40' by 35' area closest to the house is laid out very simply with seven raised beds

enclosed by Wolmanized four by fours. Paul drilled holes in the end of each board and cut rebars* into 18" lengths, which were pounded into the holes for stability. The ground between the beds and under the arbor was covered, first with heavy black plastic and then with wood chips, which I was able to get free. But I found that wood chips disintegrate too quickly, and we will replace them with pea gravel this spring.

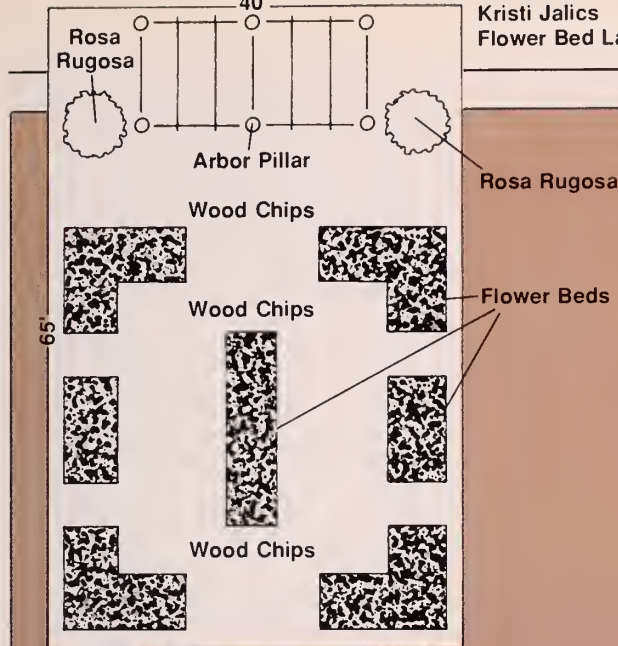
Although the beds' structure is formal, they are planted informally with old roses, cottage garden perennials and annuals, herbs and even vegetables such as ornamental peppers. The plants are close, to shade one another and discourage weeds. This happened partly by design and partly because I always seem to acquire lots of special plants at exchanges just before I go away. I can't resist trying to stuff them all in somewhere. I leave everything as weed free as possible by mid-June and try to make it back for one day of weeding in July. Generally I'm not too appalled by what I find in September. There are some weeds, and usually mildew in the *Monarda*, but this is offset by the flowers that overflow the paths: heliopsis, white phlox, aconite, cosmos, and nasturtiums.

You might think I lack a kitchen garden. Not so. It thrives under the eagle eye of Isabella Jalics. She is a five foot tall, 85-

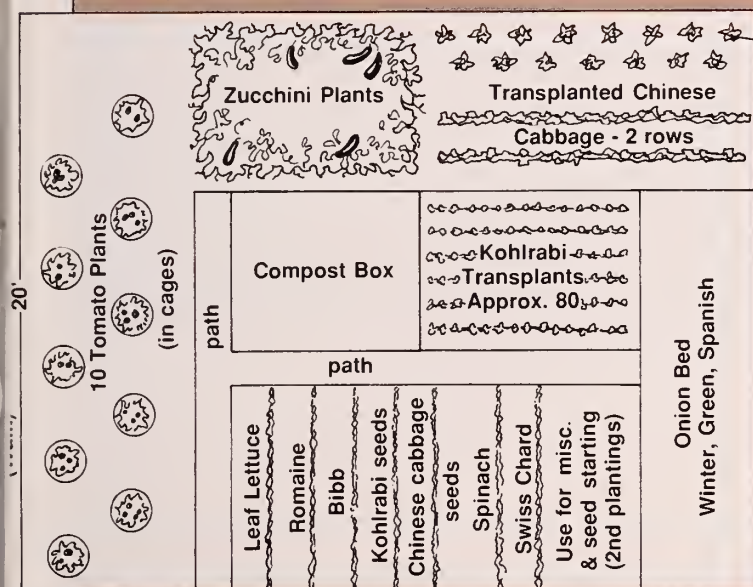
*Metal bars used to reinforce concrete.



An example of close planting in Kristi Jalic's garden. Jalics doesn't like bare earth to show. "I use strange color combinations when I stuff in too many gift plants too hastily. But I would rather have the plants than perfection without them."



Pat & Hans Steen Garden Plan 1985



Approx. 15
Pepper Plants
18" apart in row -
2 rows 18' A.

Plant kohlrabi - 3 times
(May 1-June 15,
end July)
Plant lettuce - 2 times
(May - July)
Mulch everything
(tomatoes after
they set blossoms)

Notes

9-10 tomato plants (Better
Boy)
12-15-18 peppers (California
Wonder or Midway)
80-100 kohlrabi transplants
(Grand Duke and Early
White Vienna)

Swiss Chard - Kale - Spinach

3 varieties lettuce - Black
Seeded Simpson - leaf,
Salad Bowl or Butter
Crunch , Romaine

Jade Pagoda Chinese
Cabbage
Zucchini Elite - 6 plants

But where is a satisfied gardener? Reading about the "one straw revolution," watching Mel Bartholomew's apostolic zeal for square foot gardening, dreaming over the romance of Rosalind Creasy's "edible landscape," I want to experiment, or at least talk to some absentee gardeners who are playing around with these ideas.

at the home away from home

In Point Chautauqua, two of my favorite neighbors are Pat and Hans Steen who have been growing superlative vegetables in Lower Burrell, Pennsylvania for 31 years. They are weekend gardeners in reverse. Pat spends nearly the entire summer at the Point, and Hans drives up every weekend laden down with all the garden goodies he

Using ideas from high-yield vegetable gardening, I came up with a plan that produced a garden whose look reminded me of eighteenth century Dutch or English gardens, but that could be left without disaster for weeks at a time.

can carry, especially Pat's favorite kohlrabi. This is planted three times in succession so she can have all she wishes to eat, usually raw. (They've tried different sorts, but White Vienna, picked when young and non-woody, is the favorite.)

Pat and Hans have been reading *Organic Gardening* many years; their newest "bible" is *Joy of Gardening* by Dick Raymond. Like everyone with whom I spoke, they do not follow any one method slavishly, but pick and choose methods that fit their circumstances and blend with their experiences. They do a lot of soil enrichment, manuring every third year and sprinkling with lime, and in the fall they cover the beds with a thick layer of leaves. Pat bags leaves from New York and hauls them back to Pennsylvania. One year they spread mushroom manure in the fall. Although Pat was charmed with exotic looking toadstools that popped up all over their yard, she decided not to repeat the experiment.

Their garden was once about 25' by 36'; now that their four children are grown, and their joy in the work of gardening has somewhat diminished, they've reduced it to 25' by 18', laid out in beds about three feet across and as long as needed for a particular crop. Paths are heavily mulched with grass clippings, and plants are scatter-sown to shade one another and further reduce weeding. Pat and Hans enjoy eating the thinnings as an early tender crop. They use no chemical fertilizers, and con-

continued

year-old-woman who manages the garden for love and for the pleasure of pursuing a hobby she first learned on her parents' estate in pre-World War I Hungary. Every morning she practices Yoga, and every evening she takes a long walk unless she has been exercising her horticultural skills in my garden. Her favorite skill is wielding the Warren hoe. She is my mother-in-law, and my husband is the youngest of her 10 children. Frankly, we cannot keep up with her in the garden, and usually urge her to

rest for a while so that we have an excuse to do likewise. A vain hope. She does not like to stop until the job is finished.

While we are gone Isabella raises everything in long raised rows of weed free "dust mulch." After every rainfall she weeds the entire garden, paths as well. Our vegetables are harvested, packed in boxes and dispatched to us by whatever relative is coming up for the weekend. In September her domain is weed-free and gorgeous.

This arrangement should satisfy me.



Valerie Strong's garden. Strong is a busy landscape architect who also teaches in France in August and part of September.

fess to Mel Bartholomew's anathema, too abundant a harvest. But they enjoy giving the surplus to non-gardening friends.

Composting is an important part of their plan for keeping the soil fertile, and they have worked out a relatively casual way to achieve it. In the center of their vegetable garden they dig a square, roughly 4' by 4' down two feet until they reach the subsoil. All the organic debris from the garden is thrown in here and rototilled in the next spring. Pat thinks it could be done better, but this is their compromise on the amount of work they want to do and the results they hope to attain.

In late February or early March, Pat keeps an eye on the ground to see when it looks dry enough to sow onions. Hans prepares the beds by rototilling and hand spading; once the paths are established the beds are never walked on, but dug from the sides. All weather sensitive plants, beans, tomatoes, peppers, corn, are in the ground by mid-May unless the spring seems too "frosty." This is about two weeks earlier than is usually recommended for their area, but they rarely have problems. Pat seems to have a good sense for what is "too frosty." For years she has bought most of her seed from Harris, which seems to do

best in her location. She also grows chard, kale, parsley, lettuce, beets, and Chinese cabbage. Flowers also contribute to the beauty and success of their kitchen gar-

Gardens are places in which to live in a peaceful rather than a pressured manner. This mindset helps the absentee gardener, of course.

den, especially marigolds. Having no intention of abandoning the pleasure of a garden, Pat and Hans are busy refining all the techniques that give them more in return for less labor.

a busy landscaper works, travels and maintains a garden

Valerie Strong, a landscape architect from Hudson, Ohio, has the most interesting garden I have ever seen, despite the fact that in spring most of her time is taken up with getting her clients' gardens underway, and in August and early September she is in the south of France directing the program for the landscape design workshop at the Chateau De La Napoule.**

Valerie, who was a French teacher for

years before becoming a landscape architect, is influenced, I think, by the Gallic veneration for the "absolutely fresh vegetable." Nothing from a market can duplicate its quality. And as she has "always" baked her own bread, she has "always" grown her own fresh herbs and vegetables, usually in four raised 4' by 8' beds. All of her yard, however, is garden with only a small area used to raise grass. Paths of pea gravel separate various growing areas and many vegetables and herbs are mingled with perennials, annuals, and old roses because their look is right for the spot. Valerie is quick to appreciate vegetables for their ornamental qualities. Red cabbage and ornamental kales are two favorites, as are brussel sprouts and long thin purple eggplant. In reverse, flowers always find their way into her salads: single orange calendulas, peppery nasturtium, and sweet violets.

If Valerie has a gospel of style to offer, it is based on tolerance. She thinks that many

**This workshop on the French Riviera has a faculty of top British and American designers including John Brookes, James Van Sweden, and Geraldine Weinstein. For more information contact: Patricia Lutz, 799 South Street, Portsmouth, NH 03801, (603) 436-3040.

gardeners are too obsessed with tidiness, and although her garden is not at all messy looking, she permits all those happy accidents to remain that add the final grace to a garden and lift it up to the status of the beloved rather than the controlled. That does not imply abandoning all control; but relaxing it for that "over the hill," slightly blowsy look that gives many English gardens such a satisfying ambience. Gardens are places in which to live in a peaceful rather than a pressured manner. This mindset helps the absentee gardener, of course.

The health of the garden is important to her. At first, she found her soil to be rather heavy clay. Adding rotted manure to the soil over the winter, along with all the wood stove ashes, has lightened it. An extravagance was the purchase of a chipper with which to process all tree and shrub prunings for compost. The garden is full of beneficent insects lured by all the flowers and herbs, especially thyme. Nothing stronger than garlic and detergent whipped up in a blender is sprayed on the plants. Valerie hopes this will make the cabbages so unattractive to the butterflies that no larvae will appear later. Crops are rotated and new combinations are considered.

Sorrel, a much loved perennial, is the first spring green to be eaten from her garden. Sorrel soup is occasionally available in February, always by early March. (Every year I am herb lady at the nature day of a nearby grade school. I bring lots of fresh herbs for the children to taste, and no matter how much sorrel I bring I never have enough to fill the requests for "more of those sour leaves.") Valerie grows snow peas on a trellis, and unless a blizzard interferes, they are usually planted by the traditional St. Patrick's Day. *Eruca sativa*, called arugula or rocket, is another salad green planted as soon as the soil is workable. Of course, in raised, well drained beds they can be planted early. Arugula is quickly ready to eat and the space can be used later for plants that love the warmth. Various chinese greens are tucked into the beds and fennel self-sows all about the garden, as beautiful as it is delicious.

Space is somewhat limited and given mostly to favorites. She grows cherry tomatoes because everyone loves them, especially her grandchildren who love to eat them out of the hand. A bit of corn is sometimes raised "because it is so decorative." There are permanent beds for asparagus and rhubarb, and room is made for cucumbers, at least one zucchini, french beans picked when pencil thin, red

photo by Valerie Strong



Harvesting snow peas in Valerie Strong's garden.

cabbage, banana peppers, radishes, purple sage and lots of basil. Valerie freezes her own pesto and also makes basil ice cubes to toss into soups and stews in the winter. In November she is still picking broccoli. The garden is very productive.

Some of her favorite kitchen gardens are Villandry in Southern France, so well photographed by Marina Schinz, in *Visions of Paradise* (with Susan Littlefield, Stewart, Tabori and Chang, New York, 1985); Rosemary Verey's garden at Barnsley House (near Cirencester, England), which was much influenced by Villandry, and the beautiful kitchen gardens at Mount Vernon. Valerie believes in planning well, preparing fertile, well-drained beds, mulching paths, planting closely, and appreciating mightily.

Some people who haven't seen my Ohio garden speculate that it's a waste for me to bother gardening there. I tell them "it ain't necessarily so." Our garden season from April through October is about 30 weeks. I'm there for about 13 of them, and I wouldn't miss the pleasure of those 13 weeks for silver or gold. Nature is an astonishing ally. Good planning in winter and hard work in spring coaxes miracles out of her year after year. You can have it all.

Tips for Neglectable Gardens

- Work hard at soil conditioning. If your soil is sandy and your summers hot and dry, it is especially important to add a great deal of humus to the beds.
- Plant closely, either scatter sowing or setting plants near enough to one another so they shade each other and discourage weeds.
- Choose varieties that do well for you and that are hardy in your area.
- Mulch all paths to reduce maintenance.
- Plant only small numbers of one variety together. Large concentrations of the same plant draw pests.
- Raise your beds to improve drainage and encourage the growth of strong, deeply rooted plants.

Recommended Reading

**How to Grow More Vegetables Than You Ever Thought Possible on Less Land Than You Can Imagine*, John Jeavons. Revised edition. Ten Speed Press, Berkeley, California 1982.

**The Joy of Gardening*, Dick Raymond. Garden Way Publishing, Charlotte, Vermont. 1982.

**The Self-Sufficient Gardener*, John Seymour. Doubleday, New York. 1979.

**Square Foot Gardening*, Mel Bartholomew. Rodale Press, Emmaus, Pennsylvania 1985.

The Weekender's Gardening Manual, Patricia A. Taylor. Holt, Rinehart and Winston, New York. 1986.

*Available in PHS Library.

Some Favorite Seed Companies

DeGiorgi Company
P.O. Box 413
Council Bluffs, Iowa 51502

Joseph Harris Company
3670 Buffalo Road
Rochester, New York 14624

Johnny's Selected Seeds
Albion, Maine 04910

Le Jardin Du Gourmet
P.O. Box 30
West Danville, Vermont 05873

Nichols Garden Nursery
1190 North Pacific Highway
Albany, Oregon 97321

Shepherd's Garden Seeds
7389 West Zayante Road
Felton, California 95018

Kristi Jalics is garden editor of the *Bath Country Journal*. She gardens in Bath, Ohio, and Point Chautauqua, New York. She is a member of the Medina County Herb Society and the British Cottage Garden Society and is indiscriminately enchanted by all plants of cottage gardens and hedgerows.



14

Wakehurst lost 50% of its woodlands in October's "Great Gale."

English Gardens Take a Whack; British Grit Brings Them Back *Philadelphia Groups Dig in to Help*



by Judy Mathe Foley

Hundreds of thousands of people visit English gardens every year, but last October England had its most capricious and destructive visitor in living memory. On Thursday evening, October 15, warm currents from Africa and cold air from the north Atlantic met over the Bay of Biscay to take an early Friday morning whirlwind tour through London and southern England. When the wind and rain subsided, residents awoke to the "overnight transformation of their local landscape," and some of the world's most historic timber thrown everywhere.

Some 15 million trees — from street trees planted by Georgian and Victorian Londoners to 200-year-old specimens like Kew Garden's Tree of Heaven — were destroyed in six hours, the worst tree loss since Dutch Elm disease took about 20

the green scene / may 1988



photo reproduced with permission. © Royal Botanic Gardens, Kew.

these trees represent."

Horticultural damage from the Great Gale of 1987 shared front page news space with political stories about why the weather service had not given adequate warning of Britain's worst gale since the Channel Storm of November, 1703. "Not even the oldest liar could remember anything like it," editorialized *The Times*. "The royalists hoped it was the devil coming to collect the souls of the regicide." The Great Gale, however, had no particular political leaning, but struck royalist and commoner alike. Carnage included Queen Charlotte's 200-year-old oaks, mulberries planted during Victoria's reign, six of Sevenoaks' 85-year-old trees planted to mark Edward VII's coronation, and a black walnut Queen Elizabeth planted in 1959.

Commoner street trees fared no better. Metropolitan London lost 100,000 planes, chestnuts, English oaks, European larches and beeches. A similar loss in Philadelphia would mean that only every third block would still have trees standing, but would have suffered some damage. When older trees fell they frequently took with them younger trees planted to be their replacements. Trees were victims, but also killers — at least three of the 18 storm-related deaths were attributed to falling trees. And everywhere trees obstructed, closing schools, keeping people from getting to work and entangling electric wires. The most extensive and expensive task was to remove the dead wood.

For English gardens the storm was "horrifying." The National Trust reported "terrible, terrible problems at 11 (of its) major properties." Angus Stirling, the Trust's director general, said, "Some of the greatest landscaped gardens Britain has produced have been destroyed."

The Royal Botanical Gardens, Kew, which an 18th century visitor called "the paradise of our world," lost more than 1,000 trees, half of them specimens. Gone were a row of tulip trees, which take 30 years to bloom and were just coming to maturation. The headache tree (*Umbellularia californica*) whose leaves contain such concentrations of volatile cyanates that a bruised leaf can cause a headache, was in fruit when it fell. The Tree of Heaven (*Ailanthus altissima*), imported from China in 1837 to memorialize King William IV, crashed into the roof of William's Temple.

Falling trees damaged the building containing Kew's palm collection, letting in dangerous cold air. Other victims included a *Zelkova carpinifolia*, an apple (*Malus trilobata*), the female of a pair of osage orange (*Maclura pomifera*), a cedar

planted just over 10 years ago by Emperor Hirohito of Japan, two 1850's *Robinia xhill-eria*, 200-year-old oaks, and Kew's only specimen of *Ulmus villosa*, a vast elm that seemed resistant to Dutch elm disease. Hickories, black walnuts, poplars, limes, and mulberries lay in leafy disarray.

kick-starting the future

Further south, at Kew's sister garden, Wakehurst Place, in England's most heavily wooded country of Sussex, damage was even worse. In what the *Manchester Guardian* called "The Night that Felled a Heritage," Wakehurst lost 50 percent of its woodlands.

Generations of invaders and settlers including Romans and Normans came to the southeast counties of Kent and Sussex,

The Morris Arboretum crew had to call on all their roping and climbing skills to do as little damage as possible to the underplantings. From the tops of the huge trees, they lowered one-ton pieces of cedar onto planks placed over the soggy turf below.

which guidebooks dub "The Garden of England." In medieval times, Flemish Huguenots began the market garden industry and colonial administrators brought trees from all over the world to add to that horticultural heritage, creating at Wakehurst what *Manchester Guardian* writer John Samuel calls "a legacy of empire."

"A piece of swank if you will, but unique," says curator Anthony Schilling whose special charge Wakehurst has been for 21 years. Located on the southern edge of the once-extensive St. Leonard's Forest, Wakehurst is a scientific, research and conservation facility of the Royal Botanic Gardens. Affectionately called "Kew in the Country" by the locals, Wakehurst attracts over 160,000 visitors a year to enjoy its natural woodland setting and to tour its gardens, most notably its rhododendron and azalea collections.

In the Great Gale's quick and savage tour through Wakehurst, it sprayed leaves with scorching salt picked up over the English Channel, knocked over a 150-year-old silver pendant lime, ripped the tops out of giant cedars, and used an uprooted conifer as a weapon to knock over a *Davidia*, or Pocket Handkerchief, tree. The winds raced in uncanny eddies and paths through Wakehurst's 500 acres, bashing native oaks, but leaving redwoods un-

continued

million trees in the decade of the 1960s to 1970s. In soil soaked by unusually heavy rainfall, older trees in full leaf were easy victims for winds that sometimes hit speeds of 110 miles per hour. In a display of English precision, *The London Times'* agriculture correspondent tallied the 7,300 trees cleared from two railway lines — an average of 10 trees per mile.

Observers called up wartime analogies and the "legendary camaraderie of the Blitz" to describe the aftermath. Walking streets cordoned off by blue and white police ribbons, Londoners gathered in small groups to tell their "bomb stories" of fallen branches and "ditches where neighbours' Volvos drowned." An official of the London Wildlife Trust said he sensed "a kind of bereavement" among the English people who are aware "of the heritage

the green scene / may 1988

scathed. "The eye went through and the whole lot went down like soldiers," guesses Schilling, who was consoled by the survival of a favorite, a century-old American hemlock, but mourns the "overall loss of majesty and maturity. It's a loss of heritage."

Estimating it will take at least two years just to clean up but determined to turn catastrophe into challenge, Schilling and his staff went out soon after the storm and planted a Korean silver fir. "It's our first tree back, a kick start," said Schilling, who dedicated the fir to "the eternity of nature. You cannot stop her."

hands across the sea

In Philadelphia the Wednesday after the storm, Raul Betancourt mentioned it at a PHS Executive Committee meeting. Afterward, PHS president Jane Pepper called William M. Klein, director of the Morris Arboretum of the University of Pennsylvania. PHS and Morris, aided by SmithKline Consumer Products, and joined by the Massachusetts Horticultural Society, offered assistance.

"We simply had to help," Klein said. "A Botanic garden like Kew is similar to a great museum or library. The trees are like basic scientific documents, living manuscripts."

A month after the storm Morris arborists William Graham, Richard Orth and Douglas Soliday, accompanied by Stephen Emery, an English arborist intern studying at Morris, arrived at Wakehurst to a chain saw chorus. All 30 staff members were busy cutting up fallen trees and hauling the debris to huge bonfires. (When the Americans were there, Wakehurst had no wood chippers, but had ordered some.)

The Morris crew set to work near the manor house clearing away two cedar trees — 3 and 5 1/2 feet in diameter, respectively — whose tops had been blown out. Since the cedars stood over a winter garden area, the crew had to call on all their roping and climbing skills to do as little damage as possible to the underplantings. From the tops of the huge trees, they lowered one-ton pieces of cedar onto planks placed over the soggy turf below.

"By the time we left, we had pretty much helped the staff clean up this entire winter garden area, and except for the stumps that remained, it looked good," said Graham. "With a little bit of growth and culturing, a person visiting would see a decent garden of plants with winter interest."

Wakehurst staff members were eager to get the grounds open to the public again, and they were clearing paths through the woodlands and roping off unsafe areas. During their 10-day visit, the four visitors from Philadelphia cleared a half mile of

these paths, removing broken branches caught in tree crotches, which would be dangerous to visitors.

Though no amount of prevention could have avoided tree damage in winds of this velocity, Graham said he and his fellow arborists were heartened to find cabled trees still standing. Cabling, a system of using flexible wire to reinforce faulty limbs in v-shaped tree crotches, is a procedure taught at Morris Arboretum. Graham's crew even found cases where a whole tree fell with its cabled branches intact.

England has fewer and less severe wind storms than the United States, and trees



have a much longer life there. Because of the English reverence for trees, "a forester might characterize some of the English woodlands as over-mature," Graham said. Huge trees were most badly mutilated, while younger, more flexible trees seem to have held their own. But Graham said the capriciousness of the winds made it difficult to judge cause-and-effect.

"Before I went to England, I thought 90 percent of the breakage in trees occurred in places where the tree had a previous fault or where the roots were damaged," Graham said. "But in England, branches broke at the tree's strength. The English oak is about as strong a wood as you'll ever find and this storm splintered those trees into almost a fiber rope. The wood was still tenaciously hanging on, but the wind just wrenched the branch away from the tree."

silver linings

Graham noted "the British tradition of making good on something that would otherwise be a tragedy," and indeed reports the storm did some favors. People will be forced to replant for future generations to replace what one observer called the "geriatric trees" that were left after the best timber was cut during WWII. The canopy loss in gardens will be offset by new open clearings in forests, which should not only

encourage new tree growth, but create new habitats for birds and other wildlife.

The Royal Botanic Gardens, Kew, an international center for the horticultural arts, is known for its propagation techniques, and carries insurance of sorts against disaster. It maintains both seeds and specimen plant cuttings in cold storage. Scientists are assaying tree roots for causes of rot, studying fungi, and cutting and saving tree cross-sections to see how they adapt to climatic conditions. Even the salty wind may provide a look at its effect on plant growth in subsequent years.

The public and private gardens may also reap benefits. At Wakehurst, "We are going to end up with views that even in our wildest management dreams we would not have had the guts to do," says Schilling. Writer Richard Mabey suggests that such radical pruning may produce showy blossoms next spring.

Should you visit? PHS president Jane Pepper says "Yes, definitely." Garden visits are a significant part of the English tourist trade, and these special gardens are experiencing enough reclamation hardships. *Spectator* columnist Ursula Buchan says moral and financial support for owners of private gardens that are open to visitors for charitable purposes "will be vital. Deciding not to go and visit a large woodland garden in Sussex, for example, because one imagines there will be much less to see there for some years will damage its chances of recovery. The last thing the owners of gardens need in their mourning is to be shunned by their embarrassed friends. Next season, they will provide the tea if we can provide the sympathy."

To contribute:

Relief Fund for English Gardens
Massachusetts Horticultural Society
300 Massachusetts Avenue
Boston, MA 02115

National Trust Tree and
Garden Storm Disaster Appeal
Box 39
Bromley, Kent BR1 1NH

The Kew Gardens Hurricane Fund
c/o The Director
Royal Britannic Gardens, Kew
Richmond, Surrey TW9 3AB

As an urban gardener, having no control over canopy is something Judy Mathe Foley understands. She recently had to transplant a bed of shade plants when an over-the-fence neighbor cut down a catalpa. Foley is a member of the PHS Council and chairs the Publications Committee.



Fuchsia x 'Mantilla' produces abundant bloom from late June through frost.

Growing Fuchsia

TOLERANT TO DELAWARE VALLEY



by Michael Howell



Fuchsia x 'Gartenmeister Bohnstedt' is available at many local nurseries. It has summered in this spot in West Chester for four years, overwintering in pots indoors.

Fuchsias are one of the most popular plants grown for late spring and early summer color. Most are prized for their trailing forms, pastel colors, abundance of blossoms and are typically grown as hanging basket specimens. Other fuchsias are upright in form and are used as garden plants or trained into standards.

The genus *Fuchsia* (named for the sixteenth-century botanist and physician, Leonard Fuchs) is indigenous to Central and South America. In the Delaware Valley, most fuchsias grow beautifully from spring into the early summer, but soon languish during mid-summer heat waves. That is because most fuchsia hybrids are derived from species native to the cool mountain climates of Mexico and South America and cannot adapt to prolonged periods of hot summer days and very warm nights. One group of fuchsia hybrids does thrive even in hot summer weather: hybrids of *Fuchsia triphylla*, a species native to the warmer climate of the Caribbean.

Fuchsia triphylla hybrids are characterized by their extreme vigor and clusters of single tubular flowers. They are generally solid colored. Unlike the pastel pinks and blues of the cooler growers, *Fuchsia triphylla* hybrids are typically intensely colored in shades of carmine, red, orange and pink.

The most commonly available triphylla hybrid is 'Gartenmeister Bohnstedt.' It has bronzy foliage, an upright habit and its flowers are a glowing orange-salmon. Another upright grower, 'Scarlet Ribbons,'

is even more vigorous and has large clusters of scarlet-red blossoms. Two excellent trailing varieties, good for hanging pots or planted in a garden area where they can cascade, are 'Trumpeter' and 'Mantilla.' 'Trumpeter' has dark blue-green foliage and bright, hot pink flowers. 'Mantilla' has blossoms of deep carmine.

One group of fuchsia hybrids does thrive even in hot summer weather: hybrids of *Fuchsia triphylla*, a species native to the warmer climate of the Caribbean.

The most difficult aspect of growing heat tolerant fuchsias is finding the plants. Except for 'Gartenmeister Bohnstedt,' most are not carried by the local nurseries. They are available through mail-order nurseries. The four hybrids mentioned are all available through G & G Gardens (6711 Tustin Rd., Salinas, CA 93907, 408-663-6252).

The best time to obtain fuchsias is in the early spring. They can be grown outside after danger of frost has passed. Though the last frost date in most of the Delaware Valley is in May, I start growing my fuchsias outside in mid-April, and cover them if the night temperature dips below 40° F. Those to be grown in pots are repotted at this time. Those varieties for the garden are planted there by early May. Fuchsias prefer an area where the soil is moist but not soggy, and where they are protected from the hot

midday sun. The fuchsias are fed with Osmocote (14-14-14, 3-4 month formulation), fish emulsion and other liquid fertilizers. They are pinched regularly (after every second set of leaves) until early June and then allowed to flower. They flower continuously until hard frost (28-32° F). You may prolong their bloom season by covering them when temperatures are predicted to drop below 35° F. I bring my plants in when they have been nipped by frost but before a hard freeze kills all of their top growth. (Note: My plants have survived 15° F). The fuchsias should all be in pots and pruned at this time.

How fuchsias are kept during the winter months depends on the grower. If you have a cool greenhouse space, the plants may be rested (watered sparingly and not fertilized) until early January. As the plants start to grow actively, gradually increase the watering and commence fertilizing. If space is not readily available, the plants can be rested, pot to pot, in a cool bright window. Water only when the soil is thoroughly dry and pinch the tips of the new growths after each two sets of leaves have developed. They can be kept small and tightly spaced this way until they are able to start their new season outside.

Michael Howell is a garden designer for Flora Design Associates and orchid specialist who also includes container-grown annuals and perennials in his home garden in West Chester, PA. He holds a B.S. in Plant Science from Rutgers University



The Champlost Homes' residents in West Oak Lane had some of their own ideas about the way things should be done.

GARDENING IN PUBLIC HOUSING

We'll Do it Ourselves . . . With a Little Help from Our Friends



by Natalie Kempner

In a one-week random poll, I asked everyone I encountered "What do you think of when you hear the words 'Public Housing'?" The responses were unanimously negative: bleak, barren, violent, scary, dismal, drab, deteriorating, depressing.

Clearly, none of my informants had experienced the winds — well, breezes — of change, wafting through some Philadelphia Housing Authority developments. New Tenant Management policies and

modernizing projects have combined with a Philadelphia Green/Greening Up PHA Program to boost morale and alter stereotypes.

In 1985, the Office of Housing and Community Development, with funds for rehabilitating public housing, sought ways to involve tenants in improving their environment. Philadelphia Green's track record for changing urban deserts to oases fit into this goal and OHCD approached Philadel-

phia Green: "You do such a good job in the real world, how about trying public housing?"

"With this invitation," says Philadelphia Green director, Blaine Bonham, "OHCD presented us with the biggest greening challenge in the city."

Juanita Wooten filled the new Philadelphia Green staff position of Philadelphia Housing Authority coordinator and was joined two years later by Deborah Hall, part-time garden assistant.

For the experiment, five housing projects, each of which was eligible for federal 'modernization' funds and had signs of tenant leadership, were selected. Juanita quickly learned that in public housing people maintain barriers, psychological as well as physical, to keep themselves safe. So, while it had seemed in theory that in housing projects there would be instant groups, ready to launch into greening, in fact, every tenant was interested in "my front yard." Tenants protested: "That space out there is not my problem. Out there things get messed up. Out there is for the Housing Authority to worry about."

Juanita found herself confronted, literally, with 'No-Man's Land.' And, at the same time, with bits of 'my land' that were very 'turfy-like.' "Philadelphia Green addresses groups. Where was the group?" she asked. "The challenge was to move from **my** yard to **our** yard."

Trained as a gardener, Juanita's work is community organizing in communities where people have given up, overwhelmed by problems. "And they do have problems. Drug problems, money problems. Life problems," she says. She learns in the doing.

Part preacher, part top sergeant, Juanita demands action: "You all got to get involved. We're not a contracting company. We'll do it with you, not for you." She chides and praises, imbuing potential gardeners with the empowering dynamic of Philadelphia Green.

planting and workshops

By the time the money came through in 1985, and greening groups were organized, it was fall. There was not a garden anywhere. Alice Bantam, Tenant Relations Officer for the Philadelphia Housing Authority, reports the excitement Juanita stirred when she called to announce, "We have 10,000 bulbs donated from Burpee! Let's get going." In grey November, wearing overcoats PHA's pioneer gardeners in all five sites planted bulbs and covered them with woodchips.

Fearful that enthusiasm would wane with the snow, Juanita provided 20 work-

shops during fall, winter and early spring. Workshops on Soil, Site Design, and Holiday Greens were popular, but Pruning was the smash hit.

According to Juanita, the Housing Authority, knowing that cuddly plants don't work, plants things that fight back. People had 'an attitude' about the thorny trees and shrubs. Provided with pruning tools at the workshops, they launched a vendetta. Trees and bushes were down to nubs. "Hey, wait a minute!" yelled Juanita slowing down the onslaught, "We're here to green up, not down! You have to learn to be benevolent to your plants."

A day with Juanita, just geographically,

is mind-boggling. She covers the map of Philadelphia, speeding from Champlost Homes in West Oak Lane, to Abbotsford in East Falls, to Wilson Park Towers about as far south in Philadelphia as houses go. She crosses the Schuylkill to Bartram Village and then heads to Norris Homes in North Philadelphia. Brainstroming over cups of tea, she is in each place a welcome guest who has dug her spade into every garden plot.

Each of the Philadelphia Green/PHA sites is different from the others, and each is in a different phase of development. In June this year, Champlost Homes will be the first to celebrate with a Greening Dedi-

photos by Juanita Wooten



◀ Before and after at Bartram Village's Children's Garden at the Daycare Center.



cation. In the 1987 City Gardens Contest, Champlost won a Special Greening Award, as well as awards for Sitting Areas, Garden Blocks and they've been awarded ribbons for their entries in two Harvest Shows. Blaine calls Champlost's success "a landmark on city greening."

I first visited Joyce Richardson, one of the two Philadelphia Green tenant coordinators at Champlost, in the week before Christmas. Swags of evergreen hung on every door along the tidy street lined with wine barrel planters and trees.

Joyce, who moved into Champlost 30 years ago when it was brand new, walked me around in bitter cold, telling stories to make vivid the greening of Champlost.

the bulb and vegetable battles

"What happened, we had the bulb planting and people were reluctant. In the spring, flowers came up all over the place and everybody asked 'Where'd those flowers come from?' One neighbor who refused to help in the fall was out there on Easter taking photos of her grandchildren stand-

ing in the tulips. That summer she did her whole front yard herself, groundcover and all."

Next came the Battle of the Vegetables. "This is no farm out here," was a common cry. "No vegetables in Champlost! We want lawns and flowers!" Infiltrators, favoring 'edible landscaping,' tucked half a flat of vegetables among the flowers and won blue ribbons for both peppers and flowers at the Harvest Show. The next year, everyone went for vegetables.

From the handsome Belgian blocks in tree pits choking young street trees, neighbors learned recycling. They undertook the monumental chore of removing the blocks to save the trees and then used them to outline their garden beds, so that hard won topsoil wasn't washed away.

In the September 1986 issue of the Champlost newsletter, Joyce Richardson wrote about gardening: "We were completely unaware of the work involved. With long hours spent pick and shoveling the flowerbeds, the actual planting of these beds, and the constant watering and weed-

ing of same, we began to realize the fruits of our labor, as well as blistered hands, tired legs, and broken backs . . ."

The success of Champlost can be attributed to its manageable size (102 units) and its strong Tenant Council. Effective organization makes greening easier and, simultaneously, greening invigorates tenant organization.

winning some — where's the water

"Before," says Joyce, "even though we were organized, only a faithful few worked on things. The others called us a clique. When the bulbs came up, gardening caught on. We have a lot of differences, but this seems to bring us together. Because we garden together, we organize around other issues."

For example, faucets. Traditionally, each housing complex has only one or two outside faucets. When recent PHA kitchen remodelling began, gardeners organized for a little additional plumbing, and now every house in Champlost has its own outside faucet.

continued



Photo by Juanita Wooten

Louise Ruley, a resident at Wilson Park Towers, sparked the greening movement there.

This year, PHA will turn the management of two of its 43 projects over to tenants. It is, perhaps, significant that the two projects selected are Champlost and Abbotsford where Tenant Council leaders have honed their organizing skills in greening efforts.

Abbotsford Homes is not Champlost. Its 700 units are built on eroding slopes. Unwieldy, neglected landscapes yield few personal spaces. Vacated units deteriorate, fencing collapses, curbing disintegrates, trash abounds. "And yet," says Alice Bantam, "there are pockets of beauty in Abbotsford now, and they'll spread."

The implausibility of overall greening at Abbotsford led to focusing on strategic spots for showy plantings and special effects: a sitting area, plantings on an eroded slope and a small gem of a garden on Henry Avenue where the buses stop. A mural, startling in its simplicity, was painted by Michael Harrel, grandson of PHA coordinator, Dorothy Harrel on the end wall of their brick complex. A single yellow rose fills the white background.

Aware that the PG/PHA Program for Abbotsford is scheduled to end this year, Dorothy smiles: "Don't think this is the last year. We're making our own progress. We have lots to do, and we'll do it." Knowing well that rose gardens do not appear in a season, single roses, one at a time, are enough.

At Norris Homes, Diane Gass thought of herself as a seasoned gardener, but coordinating the community vegetable garden and redesigning her front yard, she's done

things she never did before. "Before, I just dug a hole and stuck it in. Now we even produce our own organic fertilizer so we don't need to worry that the kids can't read the labels."

"But we," adds Diane with pride, "taught Philadelphia Green how to do picket fences." Norris residents organized PG's first famous two-day Picket Fence Workshop, using wood recycled from packing crates dropped in the street outside a nearby bedding factory."

the children dig in

Bartram Village, lacking an adult tenant organization for community projects, started with a Children's Garden for its Daycare Center.

The Daycare staff worked with Philadelphia Green constructing fences and beds. Greg Tribuiani, Day Care Director, shakes his head: "I never had experienced gardening before — all those stubborn roots and weeds! Juanita had mentioned a rototiller but it never came."

Teachers, Emma Ellis and Carol Simons, expected gardening would be bedlam. "Not true! The troublemakers get involved with earthworms and weeds and are happy as can be with shovel in hand. The two- and three-year-olds watch the magic of the plants: blossom one day, tiny fruit the next."

Despite the excitement of the kids, the attempt to get wider community involvement at Bartram has failed. The teachers, who do not live in the project, despair that

not even the families of the children take part. "The parents are young, very young," explains Emma. "They may come by and say it's pretty, but there is no gardening heritage."

At Wilson Park Towers, a high-rise building for Senior Citizens, lots of people do have gardening heritage. Green Tenant coordinator, Louise Ruley, grew up on a farm. As block captain in her old neighborhood, she worked three years with Philadelphia Green, planting street trees and urns. "We became The Most Beautiful Block in Town and then I moved here."

At Wilson, there is no resistance to vegetables. Gardeners with memories long enough for World War II Victory Gardens, grow okra, greens and peppers in a V-shaped plot. Flower-filled wine barrels overflow with color, making the lobby entranceway that of a posh hotel.

Louise waters gardens in the early morning or at dusk to avoid splashing senior tenants sitting around in wheelchairs. "We need help, stronger bodies. It's hard when you're old, hard to get going. People wish for things, but fall back from work."

Champlost Homes is the model. The June celebration at Champlost will be a demonstration of what is possible. But a spirit has been awakened and changes, less spectacular, are happening in other places, too.

"The changes," states Blaine Bonham, "are more profound than the plants. They are social, psychological and physical."

Celebrate Champlost on June 3 from 1-4 pm, at Champlost Homes at 20th & Champlost Avenue (Near La Salle College).

You are invited to meet the proud tenants of Champlost Homes at their garden sites and discuss techniques for planting slopes, tree maintenance, ground covers and other wonderful gardening solutions in public land gardens. The staging will be in place for the month of June.


For brochure or other information call Philadelphia Green, 625-8280.

Natalie Kempner is recipient of the Pennsylvania Horticultural Society 1976 Teacher of the Year Award; founder and retired director of the Norris Square Neighborhood Project Urban Environmental Education Center. She is a member of the PHS Council and serves on the Philadelphia Green Advisory Board.



BOOK REVIEWS

Daffodils for Home, Garden and Show by Don Barnes (Timber Press, 1987; Hardcover \$23.95)

 **by Kathryn Andersen**

Don Barnes, secretary of the Daffodil Society (England) has provided us with an up-to-date daffodil bible. This new book is not only a comprehensive and accurate reference book for narcissophiles from every experience level, it is also a book that is a pleasure to read and exciting to study. It is filled with high-quality color and black and white photographs. The author has graphically illustrated some of the finer points of classification and propagation with exquisite line drawings.

Mr. Barnes's book is the only one this reviewer has seen that deals adequately with growing daffodils for home enjoyment — mass plantings, rock gardens, general garden display, forcing for winter bloom, etc. — **and** for the show bench. From clear illustrations of different types of bulbs to the sophistication of exhibiting collections at the show, Barnes has skillfully imparted his vast knowledge to us in a very readable manner.

He deals at length with hybridizers from the past and present on a world-wide scale. Unfortunately, his lists of 'useful cultivars' does not include a representative selection for those from American hybridizers. Those he does list, however, will all grow well in the Delaware Valley area, and there are many

American-bred among them. His source list will be of particular value to those who wish to expand their collections. With no barrier to importing daffodil bulbs, growers may wish to acquire catalogs from overseas suppliers.

In translating from the English point of view, we need only adjust our thinking in the section on staging blooms for the show table. Culture and other aspects of showing do not vary from England to the U.S. This book belongs in the library of everyone who has or would like to have a serious interest in daffodils.



Kathryn S. Andersen is president of the American Daffodil Society, Inc.

Practical Woody Plant Propagation for Nursery Growers Volume I. by Bruce Macdonald. (Timber Press, Portland, Oregon 1986. Hardcover \$54.95)

The Reference Manual of Woody Plant Propagation from Seed to Tissue Culture. by Michael A. Dirr and Charles W. Heuser, Jr. (Varsity Press Inc., Athens, Georgia 1987. Soft cover \$29.95)

 **by Darrel Apps**

These two books are testimonials to the professional fellowship, research and infor-

mation produced by the 37-year-old International Plant Propagation Society (IPPS). The authors (all three are active members) readily cite research and pay homage to the "seek and share" IPPS motto. The information in the books, however, goes far beyond what is found in the Society's annual *Combined Proceedings*.

The Macdonald book is monumental in size: 20 chapters, 699 pages, 627 black and white pictures and 30 line drawings.

It is primarily a reference book with reams of new information from an author who knows his subject. Bruce Macdonald is now the director of The Botanical Garden at The University of British Columbia in Vancouver, Canada. He received his training at Hertfordshire College of Agriculture and Horticulture, St. Albans, England and from Wye College University of London. He worked four years for English nurserymen and taught 10 years at Hadlow College of Agriculture and Horticulture in England. He has been at the University of British Columbia, Canada, for eight years.

Practical Woody Plant Propagation for Nursery Growers reflects his academic and practical training and his extensive travel to nurseries in Canada, United States, Denmark, West Germany, The Netherlands, Belgium and England. Macdonald's acknowledgements are a "Who's Who" of plant propagators from nurserymen to institutional professionals.

He states, "This book is directed to those entering the nursery trade as a career and

continued

BOOK REVIEWS

to students of practical nursery production, as well as to the nursery owner and employee who wish to revise their present practices by learning of other procedures or to add other methods of regenerating plants to their propagation program." For the most part he achieves his objectives. There are a couple of divergent points. Some students will be turned off by the size and price of the book; it is too big and too heavy to put in a backpack. A few erudite professors will fault it because the text tends to avoid fundamental plant growth principles involved with plant propagation. Because it is written from a practical standpoint and is easily understood, it will be of interest to amateur gardeners and growers. Nursery propagators and college teachers will find it a must.

In addition to chapters about seed propagation, cuttings, sticking, layering, and grafting, Macdonald includes chapters on facilities, media, tools, containers and diseases. The final chapter on micropropagation is packed with its history, advantages, limitations, facilities required, equipment needed, types of personnel, record keeping and discussions on media. Each chapter could stand alone as a small book.

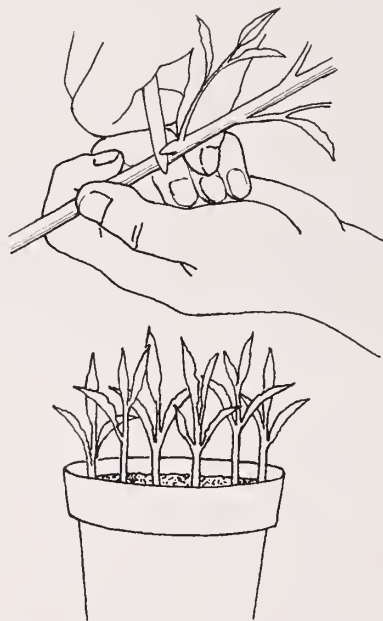
Although the text reads somewhat like college horticulture course notes (advantages, limitations, flow charts and outlines), ample anecdotal information helps to make the reading more enjoyable. For example the story of *Cornus* 'Eddie's White Wonder':

"During the early 1940's, Mr. Eddie began a hybridization program to combine the best qualities of *Cornus nuttallii* (Western Flowering Dogwood) and *C. florida* (Eastern Flowering Dogwood). Tragically, almost all his promising seedlings were lost during 1948 when the Fraser River burst its banks, resulting in the nursery being under 4.25 m (14') of water for several weeks. Fortunately, one particular seedling that had shown considerable promise had already been propagated by grafting and budding onto *C. florida* (Eastern Flowering Dogwood) and the progeny had already been planted out in an area near the site of what is now the Vancouver International Airport. These were not lost in the floods, and the selection was later named *Cornus* 'Eddie's White Wonder!'"

The book has three indexes, one for

common names, another for scientific names and one for general subjects. A check on rooting hormones shows that it is listed three different ways: under rooting hormones, auxins and growth regulators. (The book is worth one-half its price for this chapter alone.)

In the preface Macdonald projects Volume II: a "concise documentation of specific propagation methods used for many different genera, species and cultivars." The question is, does Dirr and Heuser's



impressive *The Reference Manual of Woody Plant Propagation* fulfill Macdonald's proposed plan. Their book is a how-to "cook book" that presents information on propagating some 1,100 species, varieties and cultivars of woody plants.

The senior author, Dr. Michael Dirr, holds B.S. and M.S. degrees in horticulture from Ohio State and a Ph.D. in plant physiology from the University of Massachusetts. Dirr has been on the staff of the Horticulture Department of the University of Illinois, taken a sabbatical at the Arnold Arboretum, been director of the Georgia Botanical Garden, and at present is professor of Horticulture at the University of Georgia. He has written 200 professional papers.

Dr. Charles Heuser received his B.S. degree in Horticulture from Rutgers University, an M.S. in Horticulture from Purdue University and his doctorate in Plant Physiology from Rutgers in 1969. He was on staff of the Departments of Horticulture at Iowa State University and The Pennsylvania State University. He has edited the publications of the Eastern Region of the International Plant Propagator's Society since

1977. He has written and published over 50 professional papers.

This softbound reference manual will likely be the one book that is found on every plant propagator's bench. The first 68 pages are organized into four chapters on seed propagation, cutting propagation, grafting and budding and tissue culture. The remaining 143 pages are an encyclopedia of practical plant propagation techniques. The first part of the book imparts basic information to help the propagator understand recommended practices in the encyclopedic section.

Like Macdonald's book it is practical rather than theoretical. The micropropagation chapter does wander from woody plant examples but that is not a serious problem. The type size in the text is a problem and will be too small for many propagators to read in dimly lit work areas.

The methods of propagation under each genus are easily understood. A great deal of the information is from both authors' experiences. Frequent references to the senior author are a bit confusing since the text does not clearly let the reader know who this is. References such as "the senior author observed that" may be important if the reader wants to know does the experience originate from Georgia or Pennsylvania since the time to perform certain techniques makes a difference. The growing season in Georgia is six weeks ahead of that in Pennsylvania.

Most readers will appreciate the way the authors condensed the information into this very useable book. Adequate references allow readers to find specific in-depth information. Indexes are provided for both common and scientific names. Most users will simply open the pages and follow the alphabet to the genus they are interested in. Because it is so useable amateur gardeners will want this book for their libraries. Both authors are relatively young men, therefore potential exists for new editions as more research information becomes available.

Commercial woody plant propagation will surely be advanced by the work of these three professionals. Now that woody plant propagation is adequately recorded someone needs to consider a book on propagating herbaceous perennials.

Darrel Apps, former head of Education at Longwood Gardens, now heads his own business, Garden Adventures. Among other things, Garden Adventures offers in-service training for garden centers and nursery personnel and their clients.

The Joyous Struggle

Two 24-hours-a-day horticulturists transform their own small city plot from a clay wasteland to a beautiful garden.

 **by Rick Darke**

A friend once said it's better to have a small garden and wish for a larger garden than it is to have a large garden and wish it were smaller. This advice has proved comforting to me and my partner Claire Savyers — two 24-hour-a-day horticulturists trying to build a garden on one-eighth of an acre of white clay in downtown Newark, Delaware.

When we started, the property already included a plant collection of sorts. Although many items from the 1950's now seem to be in vogue, that's not true about plants. Taking stock of the existing plantings in 1980, we found we had a "worst of the 50's" collection. In the front yard five round brick-red wafers led straight from the curb to the front porch, which was flanked by assorted "electric" azaleas, the kind you buy in pots wrapped in bright foil at Easter time. The back yard was dominated by two towering poplars, each nearly 70 feet tall despite evidence of decapitation, and mostly dead. A chicken wire fence covered with a mixture of forsythia and Japanese honeysuckle offered privacy, and nicely set off the silver maples, tree-like privets and a couple of monstrous lilacs that could be relied upon to turn powdery white by late summer. The only two plants worth saving were a large dogwood and a bridal-wreath spiraea.

The clay itself was daunting until we ran across Fletcher Steele's words about soils. In *Design in the Little Garden**, Steele contends that the gardener confronted by a heavy clay faces "a joyous struggle — joyous because crowned with certain success after a long fight" draining and amending the sticky mess. He cautions that those seemingly lucky enough to begin on rich deep loam may "never know true humility or hope — the sweetest lessons of the garden" and that the resultant lack of restraint may lead to such pitfalls as the

**Design in the Little Garden*, Fletcher Steele, Atlantic Monthly Press, Boston 1924, Excerpts from page 4.

the green scene / may 1988



Narrow plumes of feather-reed grass (*Calamagrostis x acutiflora* 'Stricta') glow with the setting October sun.

"overdevelopment of interest in the science of horticulture at the expense of arrangement and design." We took particular note of this last horror, since we are both descended from long lines of inveterate collectors. If Steele thought clay soils a partial safeguard against the proverbial horticultural zoo, then perhaps our initial reservations were out of order.

the front yard

The first steps we took were easy and

rewarding, since almost anything was an improvement. The front yard was quickly reduced to a bare patch of turf: rather forlorn but full of potential. A new walkway of field stone was installed, leading west from the driveway and curving to the front porch. This route is both practical and has the advantage of backlighting the plantings as we arrive home in the evening. On weekend walks around town we'd taken note of another property in which the front yard was framed by a simple split rail fence.

continued



The front walk: spring wildflowers
welcome Rick and Claire at the
end of a May day (1986).

We added a similar fence, defining our small space and providing support for vines yet to be planted.

With our basic lines and boundaries established by fence, walk and house, we began planting with one vague goal in mind: we wanted the garden to look best from the directions we would most frequently view it. Morning being the more hectic end of the day for us, we considered the evening walk from car to house to offer the best opportunity for leisurely garden viewing. Besides, the morning walk of necessity is terminated by an automobile — a poor focal point in any garden. The view from the front porch, a frequent sitting place, was given second priority.

Selecting plants for your own small garden can be difficult if you're immersed in a large, magnificent garden during working hours, as we both are. The difficulty is compounded if a disproportionate number of your friends are equally obsessive about plants. Not only are propagations of the latest and greatest plants in the world readily available to you — they are usually free without the asking. Although our taste in plants is eclectic, we share a particular interest in eastern North American natives, and decided to make this group a partial focus of the garden. This helped to limit our choices. We grow natives not because we believe them to be intrinsically better adapted to our conditions, but for their beauty and because they are sentimental reminders of favorite natural areas. Experience has proved that there are few places in our Newark yard that even remotely resemble conditions in wild habitats.

We worked almost exclusively on the front yard for the next five years, planting irregular beds around the perimeter to heighten the sense of privacy and enclosure. A foundation bed was extended across the walk and into the lawn, so that the walk now takes you through the middle of the planting. This area has proved the ideal spot for delicate species that invite close viewing, and fragrant flowering plants such as Polly Hill's Choptant River strain of coastal azalea, *Rhododendron atlanticum*, which scents the beginning of the walk. The path ends at the porch with the delightful strawberry fragrance of the sweetshrub, *Calycanthus floridus* 'Edith Wilder.'

I was developing an interest in ornamental grasses at that time, and this group has since become another focus of the garden. They have proved well adapted to our heavy soil and droughty summers, and the vertical lines of the grasses work well with the strong horizontals of the now vine-covered fence. A large clump of narrow-leaved

photos by Rick Darke



The front yard in 1980: one azalea to go for a clean slate. Dying poplars tower over the back yard. The red shutters are now a pewter gray.

miscanthus is set off by the bold leaves of a grape along the drive, a contrast that is heightened when the grape turns gold in September against the lush green of the grass. Grasses planted along the west end of the front yard glow in the setting sun — a view we enjoy almost daily from June until January.

the back of the house

Construction of a sunny, south-facing room off the back of the house in 1984 forced us to deal with our poplars, which by then were showing no signs of life. Until then the back yard had been left to the dogs

In Design in the Little Garden*, Steele contends that the gardener confronted by a heavy clay faces "a joyous struggle — joyous because crowned with certain success after a long fight" draining and amending the sticky mess.

— two golden retrievers. Once the addition was complete, we reduced their domain by two-thirds, and prepared to make a new garden of the rest. Dropping the poplars wiped out the lilacs and the existing back fence, and the chips from the massive trees went a long way toward taming our clay soil. An inside corner between the back wall and the new addition suggested itself as the most logical place for a patio. This plan enabled us to make use of the existing specimen dogwood. We installed a new exterior door for access and started shopping for stone.

The local Avondale, Pennsylvania, brownstone came out top choice, and after five trips to Lou Rotunno's Chester County quarry in a rented pickup we had two and one-half tons of stone to play with. After marking a line between our proposed patio area and the adjacent planting bed, we dug down four inches and filled with sand to prepare for dry-laying the stone. We soon learned that the Avondale stone, nearly three inches thick, deserved its reputation for being difficult to work with.

For us it seemed to split unpredictably, and we quickly decided to make best use of the shapes we had, making only minor alterations. Scattering all the stones about the back yard, we played "pick and choose" and decided that adult activities such as this were probably the reason children are taught picture puzzles. Amazingly, the patio was complete by the end of a week and the stones have remained in place ever since. The cracks in-between have become covered with moss, an ideal germinating medium for bluets, which now flower for most of the summer.

The back yard butts up to a church parking lot which, happily, is quieter than the average neighbor except during a few hours each Sunday. We originally thought to plant a screen across the back to replace our old honeysuckle-covered fence. We abandoned this plan, however, when we realized how much precious planting space would be usurped. Instead, we opted for a western red-cedar fence custom built in board-and-board style. A top rail ensures longevity and seems to provide a convenient run for squirrels. The four inch spacing between boards allows for good air circulation while retaining privacy, and the fence is finished on both sides, which makes it less insulting to good neighbors. The cedar will age to a mixture of grays and browns, tying in with the patio stone and the newly painted gray trim on the house.

We've kept to our original plan of using natives when appropriate. A carolina silverbell was planted in the patio bed, adding its light shade to that of the nearby dogwood. The silverbell, one of our most delicately beautiful flowering trees, is best when seen up close, and can be maintained indefinitely in a small area by occasionally allowing older stems to be replaced by one of the frequent suckers. The area beneath these trees supports numerous spring ephemerals such as dwarf crested iris, *Iris cristata* and trilliums, planted amidst a groundcover of foamflower. Leucothoe and various ferns add evergreen winter interest as does *Sinarundinaria nitida*, a clump-forming bamboo planted near a corner to soften the fence. A half-barrel is planted with cattails and a hardy water-lily. A small circulating pump provides the relaxing sound of a trickle of water, and agitates any mosquitoes left behind by visiting birds. Exiting from the patio, a sweet-bay magnolia lightly scents the area. Like the silverbell, this native tree suckers readily and can be kept confined with relative ease.

the back border

In contrast to the patio, the back border

continued



Spring flowers brighten the back patio on a rainy April day (1987).

along the fence is mostly sunny, and provides the best opportunity for enjoying perennial flowers, both native and exotic. This border is ideally situated for viewing from both the patio and from inside the addition, and we consider these views when placing new acquisitions. We planted three black pines in the right rear corner as an evergreen backdrop, and these are held in scale by breaking off part of the new growth "candles" each spring. Various grasses intermixed in the border contribute foliage colors, texture, and height, and — more than any other plants — they react gracefully to the gentlest breeze, adding movement to the border. In the left rear corner, magnolias 'Elizabeth' and 'Merrill' were planted to challenge a large remnant silver maple. Yellow-flowered 'Elizabeth', a patented introduction of

the Brooklyn Botanic Garden and a Pennsylvania Horticultural Society's Styer Award winner, blossomed in her third year from a rooted cutting.

Eight years have passed since we first attacked the front yard, and the changes since that time have been both dramatic and subtle. The front yard plantings are now quite stable, and are acquiring some maturity. Necessary maintenance is low, and the mostly-clover lawn can be cut in less than 10 minutes. Although now we seldom sit on the porch — this activity has moved to the back patio — the walk offers a visually pleasant welcome and there is usually something blooming in one of the front borders worthy of inspection.

The back garden, being newer, is most active. Since we still have considerable interest in the "science of horticulture" we


keep nooks and crannies available for testing new plants, although we do take steps to hold the horticultural zoo at bay. Most of the "bones" of the garden are in place, and planting any new tree or shrub generally requires removing some existing specimen, which happens with some frequency. On the advice of another friend, we've adopted the policy that in small gardens it is most critical that plant selections represent the choicest material available for each type (e.g. don't plant any old sweetshrub, plant 'Edith Wilder,' the one with the clearest fragrance). The plant addict can use this dictum as an excuse for subtle upgrading, and I do.

Most recently we've been introducing new spring and fall flowering bulbs, trying to integrate them with existing perennials to extend the flowering season. We've also reserved a few spots for annual planting of tender perennials such as the purple-flowered *Salvia leucantha*, a native of Mexico. We were delighted by this in the wild garden at Wave Hill (Bronx, NY), where its late flowering deliberately coincides with the brilliant orange fall foliage color of a nearby fothergilla. A cutting held over winter will produce a sizeable plant in a single season, and we've tried to emulate Wave Hill by placing it near the fothergillas in our back border.

Our two main interests, the eastern natives and the ornamental grasses, have proved complimentary to one another. Although many of the natives have something to contribute year-round, the majority of the herbaceous species flower in spring — a time when the grasses are at a low ebb. When the spring ephemerals are past, the grasses really come into their own, carrying the garden into winter. The patio area is sunny and full of flowers in spring, then green and shaded in summer, providing the ideal place from which to view the grasses in the sunny back border. If in January, I'm sitting inside on a windy day, the waving plumes of a miscanthus will catch my eye, reminding me of the past season's joys, and the pleasures of the season to come.

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CHOICE PERENNIALS FOR SHADY GARDENS

 by Lauren Springer

There is something primeval about a shady garden. How much more romantic it is to imagine the beginnings of mankind as sultry Eve's seduction of Adam in a lush Garden of Eden than as our harsh first years on the sunbaked grasslands of the Dark Continent. Once civilized, we have come ever more under the sway of shaded places. The ancient Egyptians, Mesopotamians, Greeks and Romans all indulged themselves in the cool luxury of shaded gardens. Today, in Pennsylvania, we are fortunate to have the beauty of our native deciduous woodlands to inspire us when creating our own shaded gardens.

Why then do so many gardeners see shade as an obstacle, especially regarding perennials? In part, it must be the ideal of the sunny and colorful herbaceous border in all its gay abundance. We all dream of deep blue delphiniums, voluptuous pink peonies, radiant golden rudbeckias. How could less possibly be more in the realm of gardening?

If you spend enough time in the woods or in a beautiful shade garden, the inherent peace will soothe you, and the play of light and shadow will work its magic. Shade plants truly play "hard to get," and the chase enhances the catch. The discovery of these plants' subtle charms will make them all the more special.

The truth is that in the shade, colors lose much of their brilliancy, plants generally grow with less vigor, and flowering is not as profuse. This diminution of the qualities we so desire in our perennials has us throw in the trowel before we even begin to investigate the multitude of plants that actually flourish in the shade. First, however, let's look at how unclear the word "shade" actually is. Shade has been described as filtered, dappled, heavy, light, thin, full, high, half, open, medium, intermittent, dense, constant, deep, partial, etc. What matters is that it varies with the object causing it, the time of day, and the time of year. Most shade-loving perennials prefer a high canopy of deciduous trees or strong indirect reflected light. Full morning sun and afternoon shade suits many. A few will also thrive in constant shade, as long as it is not truly deep and dark. That is best left to the mosses or mulch.

Shade perennials show the same innate



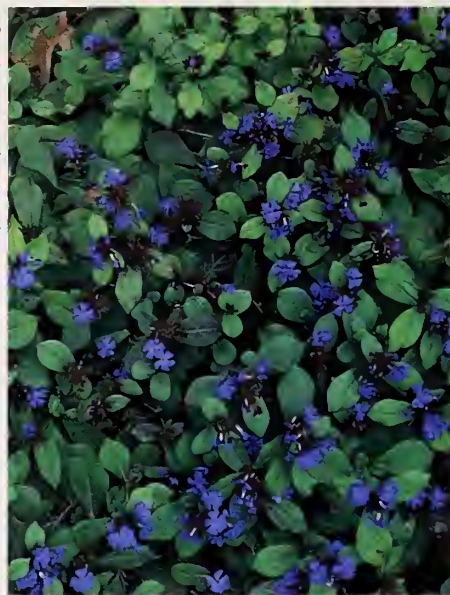
photo by Lauren Springer

predilections for specific soil and moisture conditions as do their sunloving counterparts, so it is imperative to get to know your garden's characteristics. Are there mature trees with greedy surface roots like beech, maple, or horse chestnut, or rather deep-rooted trees like oak and hickory? A few attempts with a spade into the soil will tell you quickly what you and your potential plants are up against. Also be sure to check the moisture level and texture of the soil, and amend if necessary. Shade plants appreciate a good start in life like everyone else.

This remarkably diverse group of plants can be bold or charming, wild or tidy, exotic or native. Consider the plants' style and color, and remember the effects of subdued light on the latter. Light colors like the whites, yellows, and pastels are more vivid

Our native *Lobelia cardinalis* glows in the shade in summer and fall.

continued



The true blue of the false leadwort, *Ceratostigma plumbagionoides*, is highly sought after in flowerers.

in the shade than in the sun, and the reverse is true for the reds, purples, and blues.

groundcovers

As color distinctions diminish in the shade, texture and foliage take on a new importance. Leaves are as varied as blossoms, with shape, size, color and surface texture all coming into play. This calls to mind the many lovely perennials often classified as groundcovers. Recently, groundcovers have begun to receive the respect they deserve, not merely for utilitarian but also for aesthetic reasons. So often the plants representing this group have been the overused trio: vinca, ivy, and pachysandra. While these are excellent garden plants worthy of their popularity, being hardy, disease-resistant, evergreen groundcovers with polish and finesse, their overuse has caused a plant myopia in our shady landscapes for many years. We live in an area where so many other wonderful plants thrive, so we have no excuse for our lack of creativity except lack of knowledge of all our alternatives.

If an aggressive and adaptable spreader is called for, try the variegated form of *Houttuynia cordata*, whose cream, green, and rose foliage smells of citrus when bruised. Another tough quick-spreading plant is the spotted dead nettle, tolerant of full shade and drought. Its small rose, pink, or white flowers bloom tirelessly all season, contrasting nicely with its silver-mottled foliage. The dead nettle's coarser kissing cousin, the yellow archangel, blooms briefly yellow, but its cultivar 'Herman's Pride' has especially finely marked silver-veined leaves and a mounding rather than rampant habit. Yet more polished and restrained are the shiny round evergreen leaves of the European ginger and of our native fairy-wand which prefers an acid soil. Three shade-loving groundcovers petite in stature but not in temperament are the irrepressible carpet bugleweed with green, purple rose, cream, or bronze leaf variegations, and blue, white, or pink flowers, *Mazus reptans* with charming lavender-colored snapdragon-like flowers, and moneywort spreading its round little leaves and flowers like so many bright golden coins across the ground.

A bit larger and slower, but still excellent as groundcovers or otherwise, are the following three old-fashioned favorites. Lady's-mantle has pretty grey-green lobed foliage and frothy chartreuse flowers in May and June. The more somber silver-spotted lungwort takes full shade, and carries drooping pink, white, or blue blossoms in mid-spring. Various cultivars have more silver markings on the leaf, like 'Mrs. Moon,' and the smaller species (*Pulmonaria longifolia*) is more graceful with long, slender mottled leaves and deep blue flowers. *Geranium macrorrhizum* does well in our area, its maple-like fragrant foliage topped with pretty white, blush pink, or magenta flowers.

For a fine-textured effect, both in leaf and in flower, the barrenworts are unsurpassed. Unique in form, their asymmetrical leaves are held aloft by almost invisible wiry stems. Intricate little columbine-like flowers in rose, white, yellow, and apricot, hover airily in the spring. Barrenworts can take drought and a good deal of shade, proving a lot tougher than their delicate countenance would lead one to assume. Sweet woodruff is similarly fine-textured, with fragrant dainty pinwheels for leaves, and tiny white flowers in May. It spreads quickly around other plants with harmless shallow roots, making it one of the best perennials to combine with spring-flowering bulbs, along with the late-sprouting and late-blooming deep blue false leadwort and the creeping *Phlox stolonifera*. (Many of the smaller bulbs do very well in the shade of deciduous trees, since their leaf and flower growth occurs before the canopy has filled out. They are another subject unto themselves, along with that other fine group of shade plants, the ferns. (See Dee Peck's article in the March/April 1987 issue of

Green Scene.) *Phlox stolonifera*, a native, has semi-evergreen mat-forming leaves and white, rose, purple, or blue flowers that combine beautifully with yellow daffodils.

On the subject of native plants, the eastern woodlands are rich with garden-worthy shade-loving perennials. In our increasing desire to know and grow these beauties, however, we must be sure not to recklessly decimate the wild populations. Several reputable nurseries advertise propagated stock as opposed to stock dug from the wild. Insist upon only such plants. The long-blooming green-and-gold (*Chrysogonum virginianum australe*; see Claire Sawyers' article in the January/February 1988 issue of *Green Scene*) shows a cheery simple golden face all the way into November, as well as growing quickly and fully enough to serve as a groundcover. Its flower shape and color would be considered ordinary in a sunloving plant, but the golden daisies are a rare and welcome bit of sunshine in the cool green world of the shade garden. A terrific companion plant for green-and-gold is foamflower similar in height and growth habit but with lighter green leaves and a cream carpet of bottle-brushes in May at the same time the golden daisies peak in number. Cultivars with rose and purple flowers exist, as well as the botanical variety *collina*, which forms clumps if you prefer not to deal with foamflower's encroaching habits.

spring blooming natives

Most of our natives are spring-blooming. One of the earliest is the bloodroot, an easy garden subject of great charm and beauty. Its ephemeral white-petaled flowers precede the unfurling of large palmate leaves. For a longer-lasting, less demure bloom, there are the cultivars 'Flore Pleno' and 'Multiplex,' the double bloodroots, looking every bit like miniature landlocked water lilies. Quick on the heels of the bloodroot comes Jack-in-the-pulpit, preferring moist soil but tolerant of full shade. With large leaves in threes and curious green and purple striped flowers, it adds an almost tropical effect to the shade garden. In late summer and autumn, bright red berry clusters remind us where the flowers stood earlier. With similar leaves but much more dramatic flowers, the well-known and



The cheerful native columbine, *Aquilegia canadensis*, graces a garden in May.

much-loved white wake-robin makes its short but precious annual display. As it fades to pink, other *Trillium* species with brownish-red, chartreuse, and yellow flowers, some with lovely mottled leaves, also slowly fade into the advancing spring greenery. The arching stems of merrybells dangle slender yellow bells from their tips, while the similar Solomon's-seal bashfully displays its little cream bells under each leaf. A relative of this modest native is *Polygonatum commutatum*, a graceful garden giant at five feet, and the smaller Asian *P. odoratum thunbergii* 'Variegatum,' which has white-edged leaves and larger fragrant white flowers. Also fragrant, the false Solomon's-seal carries its cream flowers in a foamy cluster at the end of its arching stem, and these in turn become bright red berries in autumn.

One of the smaller but more striking of our native shade-loving perennials is the blue or white dwarf crested iris. It grows a mere six inches tall and spreads nicely. Also low to the ground are the acid-loving Oconee-bells with evergreen foliage turning coppery bronze in winter. Its delicate white bells are more refined in form than most of its native woodland cohorts. The wild columbine, however, can give Oconee-bells a run for their money. This red and yellow flower flutters daintily above equally delicate, lobed leaves, and is happy in quite poor rocky soil, seeding in prolifically. A pretty companion to this brightly-colored gem is the blue Jacob's ladder so named for the ladder-like appearance of the finely-textured leaves. These two happy bedfellows put on a subtle but cheery show for over a month in late spring. On the other hand, the wood poppy and Virginia bluebells share their exquisite beauty for a much shorter but

equally treasured time in mid-spring. The golden-yellow poppy flowers contrast wonderfully with the pendent bluebells and also with the blue stars of the simultaneously flowering wild sweet william. This delightful plant comes in a white form, as well as a fragrant light lavender cultivar called 'Dirigo Ice.' Later, in the early summer, the much larger, almost shrub-like goatsbeard tops its deep green incised leaves with creamy plumes. The cultivar 'Kneiffii' is a little more manageable in size, only growing to three feet rather than six.

If, in your shaded garden, you are fortunate enough to have water, often referred to as the soul of a garden, or even just an area of constantly damp ground, there are various perennials perfectly adapted to such wet conditions. Two natives of totally opposite appearance will thrive. The comely little marsh marigold with its rounded leaves in a squat lush mound, has disarmingly pretty yellow buttercup-like flowers in April. A double form is also available. In contrast, a tall fiery red spike of a plant, blooming from midsummer into autumn, and attracting hummingbird and man alike with its vibrant color, is the cardinal flower, a short-lived but self-perpetuating perennial for shade.

moisture-loving plants

Native plants have undisputable charm, but many of us prefer a neater, more manicured look in our gardens, or perhaps a bolder, and somewhat exotic feel. The following moisture-loving plants are more dramatic than charming. The astilbes, with their refined foliage and feathery plumes, exude style. From the many early summer-blooming hybrids to the smaller August-blooming *Astilbe chinensis* cultivars, they add finesse to a shady area. The newer *Astilbe simplicifolia* cultivars promise even

more refinement with their arching flower-heads and finely cut foliage. Many of the more available hybrid cultivars are sensational, especially the pure white 'Bridal Veil' and 'Snowdrift,' and the glowing red 'Fanal.' For big, bold foliage, the *Rodgersia* can't be beat. The round two foot wide leaves of *R. tabularis*, and the horse chestnut-like leaves of *R. aesculifolia* and *R. polophylla*, the latter with a bronzish cast, give a tropical effect at a pond's edge or in a bog. The cream flower plume is an added bonus.

focus on foliage

For a bold architectural look in moist rather than wet soil, hostas are the perfect perennial. Disease-resistant, long-lived, and tolerant of full shade, these elegant plants come in an amazing and confusing number of shapes, sizes, and foliage variegations and colors. The flowers are similar, generally lavender, purple, or white, with only a few strongly fragrant, one being the old fashioned late-blooming white plantain lily of which rare double-flowered and giant-flowered selections exist. 'Royal Standard' and 'Honeybells' are two other more readily available fragrant hostas. So many great hostas range anywhere from a few inches to several feet in size, that it is best to read their descriptions and pick several you like the sound of; hardly a bad one exists out there. Of special note are the golden and chartreuse cultivars 'August Moon,' 'Gold Standard,' 'Piedmont Gold,' and 'Sum and Substance,' for they truly light up a dark shady corner. The glaucous blues are also a tremendous color asset in the garden — 'Krossa Regal' and *H. sieboldii* 'Elegans' are two large ones, and the new *H. x tardiana* 'Halcyon' with huge purple flowers shows great garden prom-

continued

ise. A special treasure is the October-flowering little *H. tardiflora*, which unfortunately is maddeningly difficult to find but worth every dogged effort.

To contrast with the large wide leaves of the hostas, several grasses and grass-like perennials thrive in the shade. Our native wild-oats, (*Chasmanthium latifolium*), let their flower spikelets dangle and tremble in the breeze from June until they disintegrate long after the first frost sets in. The rare *Hakonechloa macra* 'Aureola' is a slow-growing but stunning golden variegated grass that increases into graceful drooping mounds of color. The tufted hair grass on the other hand, is green but forms a finely textured trim clump tolerant of a good amount of shade and drought. The Japanese sedge grass has slender white and green striped leaves, similar to the more gold-toned lilyturf. Lilyturf blooms in short spikes in late summer, the cultivars 'Big Blue' and 'Munroe White' having the showiest flowers. If you want something really dramatic to go with those chartreuse hostas, why not try the black mondo grass, a slow but steady clump-former needing moisture. For a beautiful grass inflorescence, Korean feather reed grass takes the prize. Three foot tall rosy-buff plumes sway over a grassy mound of foliage from September until early winter, unless you just must have it for that special flower arrangement.

Daylilies with their attractive grassy green foliage, are quite content to bloom in light shade. Like hostas, there are hundreds of wonderful cultivars, coming in every hue but blue. A few standouts are the golden 'Stella d'Oro,' for all-season bloom and vigor; *Hemerocallis lilioasphodelus*, the fragrant yellow May-blooming species; *H. citrina* with its lemon-scented night-blooming yellow flowers; and 'Autumn Prince,' sending yellow stars high above its foliage in October. Another perennial for shade with grasslike foliage is the underused longblooming spiderwort, (*Tradescantia x andersoniana*), which prefers moist soil but is otherwise not in the least bit fussy. Blue, pink, purple, or white three-petaled flowers nestle in a mound of grassy leaves.

three bewitching beauties

A few choice plants turn the shaded garden into a fairyland with their delicate flowers. The perennial foxglove is the tallest, its thimble-like creamy yellow flowers nodding from a two to three foot tall stem.

photo by Lauren Springer



Hakonechloa macra and its cultivar 'Aureola' are rare and choice shade-loving grasses.

These bewitching brown-bespeckled flowers often vibrate from fat bumblebees squirming to exit after a productive pollen harvest. The two smaller fairyland flowers are perhaps the most enchanting shade perennials of all, the violets and the primroses. Books have been written about these beautiful little plants. Violets are a confused bunch, with a lot intermarrying, and therefore you might not always know what you have, but if it is a violet, it will undoubtedly be a lovely little plant, no matter what its name. Primroses thrive in cool shady gardens. The candelabra types, with their tiered whorls of flowers, need a wet soil. In our area, the most successful of this group is the prolific Japanese primrose (*Primula japonica*) in white, crimson, purple, and all shades of pink and rose in between. It blooms for over a month in late spring, seeds itself in abundance, and often reblooms lightly in the fall. For more well-drained soil (especially in winter), the pastel eight inch tall snowflake-like *P. sieboldii*, the lilac or white drumstick flower ball of *P. denticulata*, and the many brightly-colored hybrid primroses all put on a delightful early spring display. The Barnhaven *acaulis* strain is known for its long-lived hardy pastel primroses, many of which have rose-like double blossoms. All primroses thrive on frequent division, so with a little work, you should have a garden full of them in a few years.

long flowering shade perennials

Several shade perennials have a long flowering season, a much appreciated attribute in all garden plants. The ferny-leaved yellow fumitory starts in May and only lets up during the hottest weeks of the summer, continuing on bravely until frost. Closely related, the pink or white wild

bleeding-heart can match fumitory month for month. In late winter and early spring, the white Christmas rose and its less fussy cousin the lenten rose put on a two-month-long show. The dark purple forms of the usually cream and pink lenten rose (*Helleborus atrorubens*) sometimes considered a separate species, look especially beautiful when paired with the pale yellow flowering shrubs that bloom at the same time, the winterhazels, forsythias, and winter jasmine. Both hellebores need rich soil that is not acidic (pH of 6.5 - 7, preferably.) Their glossy semi-evergreen foliage is worthy of growing in its own right. On the tails of the lenten rose come the blue forget-me-not-like flowers of the small navelwort and its larger look-alike, the Siberian bugloss. The large heart-shaped leaves of the latter also come in a variegated form, and it is an enchanting partner to the pink bleeding-heart. Later in the summer, the starry white, silver, and pink *Astrantia spp.* begin to bloom, and continue on well into autumn. These subtle perennials prefer moisture and can handle heavy clay soils.

summer's end and fall

As the summer draws to an end, we shift our sights from the colors of the perennial flowers to those of the changing foliage of the trees and shrubs. This need not be the case exclusively, however, because there are several shade perennials that bloom in late summer and autumn. In a woodland garden, the rampant blue cloud of the self seeding hardy ageratum and its drought-tolerant relative, the white snakeroot bloom cheerfully on till Hallowe'en. Sleepy, late-season butterflies frequent these wild and wooly cousins. More dignified and subdued fall flowers that are best appreciated up close, are the orchid-like spotted toad lily, and the pink and white turtlehead, the latter two preferring moist soil. They are both much prettier than their common names might suggest. For glowing white or red berries, there are the poisonous baneberries. Similar to the baneberries in their incised leaf-form and their lax, open growth habit, are the bugbanes, the showiest and latest being *Cimicifuga simplex*, bearing white bottlebrush-like flowers high on wiry stems for over a month in mid-autumn. The cultivar 'White Pearl' is especially bright and floriferous, lighting up a shaded area like so many white candles. Equally striking are the brown and purple-leaved cultivars 'Braunlaub' from Germany and 'Atropupurea,' popular in Britain, just

beginning to make their way overseas into our nursery trade. If you have a hankering for true blue flowers, the gentians are the archetype. The least difficult to grow are the autumn-blooming moisture-loving willow gentian, with strap-like leaves on two foot stems bearing rich blue trumpets in abundance, and the crested gentian which begins flowering earlier, in mid-summer, but continues its blue show into fall.

For bold foliage and fall bloom, try the long-flowering hardy begonia, and the oak-leaved *Kirengeshoma palmata*. The hardy begonia has drooping bright rose panicles,

and leaf-veins and stems infused with red that invite backlighting. *Kirengeshoma* is an exotic beauty, its creamy yellow flowers like drops of melting wax on the dark green matte leaves. The somber beauty of this plant echoes the quiet sadness of the end of the growing season. The cheerful Japanese anemone, *Anemone x hybrida*, will have none of this, however. In pink, white, or rose, single or double, pinwheels gaily whirl high above grape-like leaves. Anemones, especially the white ones, don't give in to the shortening days until October has come and gone. The low-lying rays of the

autumn sun making their way into the otherwise usually shaded garden are ideal for catching the beauty of the petals of this simple but elegant flower.

And so winter comes to the shade garden. It is time to reflect and plan for the renewed and the new. There are so many other garden-worthy shade plants that await your discovery. Winter is the time to read and learn so that come spring, you can plant and then watch grow and thrive these most graceful and gentle of plants, the perennial plants that prefer and delight in the cool tranquility of shaded places.

Groundcovers for Shade

Ajuga reptans, carpet bugleweed
Alchemilla vulgaris, lady's-mantle
Asarum europaeum, European ginger
Astilbe chinensis, false spiraea
Brunnera macrophylla, Siberian bugloss
Ceratostigma plumbaginoides, false leadwort
Chrysogonum virginianum var. *australis*, green-and-gold
Epimedium spp., barrenwort
Galax urceolata, fairy-wand
Galium odoratum, sweet woodruff
Geranium macrorrhizum
Hemerocallis spp., daylily
Houttuynia cordata
Lamiastrum galeobdolon 'Herman's Pride,' yellow archangel
Lamium maculatum, spotted dead nettle
Liriope platyphylla 'Variegata,' lilyturf
Lysimachia nummularis, moneywort
Mazus reptans
Omphalodes verna, navelwort
Ophiopogon japonicus 'Ebony Knight,' black mondo grass
Phlox stolonifera, creeping phlox
Pulmonaria longifolia, *P. saccharata* 'Mrs. Moon,' lungwort
Tiarella cordifolia, foamflower

Fine-textured Foliage

Aquilegia canadensis, wild columbine
Corydalis lutea, fumitory
Dicentra eximia, wild bleeding heart
Epimedium spp., barrenwort
Galium odoratum, sweet woodruff
Lysimachia nummularia 'Aurea,' moneywort
Polemonium spp., Jacob's ladder

Bold-textured Foliage

Arisaema triphyllum, Jack-in-the-pulpit
Begonia grandis, hardy begonia
Brunnera macrophylla, Siberian bugloss
Helleborus atrorubens, purple lenten rose
Helleborus niger, Christmas rose
Helleborus orientalis, lenten rose
Hosta spp.
Kirengeshoma palmata
Polygonatum commutatum, giant Solomon's-seal
Rodgersia aesculifolia, *R. podophylla*, *R. tabularis*
Trillium grandiflorum, *Trillium* spp., wake-robin

Grass-like Foliage

Calamagrostis arundinacea var. *brachytricha*, Korean feather reed grass
Carex morrowii 'Variegata,' Japanese sedge grass

Chasmanthium latifolium, wild-oats
Deschampsia caespitosa, tufted hair grass
Hakonechloa macra 'Aureola'
Hemerocallis spp., daylily
Liriope platyphylla 'Variegata,' lilyturf
Ophiopogon japonicus 'Ebony Knight,' black mondo grass
Tradescantia x andersoniana, spiderwort

Variegated Foliage

Ajuga reptans, carpet bugleweed
Carex morrowii 'Variegata,' Japanese sedge grass
Hakonechloa macra 'Aureola'
Hosta spp.
Houttuynia cordata
Lamiastrum galeobdolon 'Herman's Pride,' yellow archangel
Lamium maculatum, spotted dead nettle
Liriope platyphylla 'Variegata,' lilyturf
Polygonatum odoratum var. *thunbergii* 'Variegatum,' Solomon's-seal
Pulmonaria longifolia, *P. saccharata* 'Mrs. Moon,' lungwort

Spring-blooming Woodland Natives

Aquilegia canadensis, wild columbine
Arisaema triphyllum, Jack-in-the-pulpit
Caltha palustris, marsh marigold
Chrysogonum virginianum var. *australis*, green-and-gold
Dicentra eximia, wild bleeding heart
Iris cristata, crested iris
Mertensia virginica, Virginia bluebells
Phlox divaricata, wild sweet william
Phlox stolonifera, creeping phlox
Polemonium spp., Jacob's ladder
Polygonatum biflorum, *P. commutatum*, Solomon's-seal
Sanguinaria canadensis, 'Flore Pleno,' 'Multiplex,' bloodroot
Shortia galacifolia, Oconee-bells
Smilacina racemosa, false Solomon's-seal
Stylophorum diphyllum, wood poppy
Tiarella cordifolia, *T. c.* var. *collina*, foamflower
Trillium grandiflorum, *T. spp.*, wake-robin
Uvularia spp., merrybells

Moisture-loving Shade Perennials

Aruncus dioicus, goatsbeard
Astilbe spp., false spiraea
Astrantia spp.
Caltha palustris, marsh marigold
Chelone glabra, *C. lyonii*, turtlehead
Gentiana asclepiadea, willow gentian
Lobelia cardinalis, cardinal flower
Rodgersia spp.
Tradescantia x andersoniana, spiderwort

Long-Flowering Period (4 weeks or more)

Anemone x hybrida, Japanese anemone
Aquilegia canadensis, wild columbine
Astrantia spp.
Begonia grandis, hardy begonia
Brunnera macrophylla, Siberian bugloss
Calamagrostis arundinacea var. *brachytricha*, Korean feather reed grass
Ceratostigma plumbaginoides, false leadwort
Chasmanthium latifolium, wild-oats
Chrysogonum virginianum var. *australis*, green-and-gold
Corydalis lutea, fumitory
Dicentra eximia, wild bleeding heart
Digitalis grandiflora, foxglove
Eupatorium coelestinum, hardy ageratum
Eupatorium rugosum, white snakeroot
Helleborus spp., Christmas and lenten roses
Hemerocallis 'Stella d'Oro,' daylily
Lamium maculatum, spotted dead nettle
Lobelia cardinalis, cardinal flower
Lysimachia nummularia 'Aurea,' moneywort
Polemonium spp., Jacob's ladder
Primula japonica, Japanese primrose
Tradescantia x andersoniana, spiderwort

Late-summer- and Fall-Blooming Perennials for Shade

Actaea pachypoda, *A. rubra*, baneberry (berries)
Anemone x hybrida, Japanese anemone
Astrantia spp.
Begonia grandis, hardy begonia
Calamagrostis arundinacea var. *brachytricha*, Korean feather reed grass
Chasmanthium latifolium, wild-oats
Ceratostigma plumbaginoides, false leadwort
Chelone glabra, *C. lyonii*, turtlehead
Chrysogonum virginianum var. *australis*, green-and-gold
Cimicifuga simplex 'White Pearl,' 'Braunlaub,' 'Atropurpurea,' bugbane
Corydalis lutea, fumitory
Dicentra eximia, wild bleeding heart
Eupatorium coelestinum, hardy ageratum
Eupatorium rugosum, white snakeroot
Gentiana asclepiadea, willow gentian
Gentiana septemfida, crested gentian
Hemerocallis 'Autumn Prince,' daylily
Hosta plantaginea, *H. tardiflora*, plantain lily
Kirengeshoma palmata
Lamium maculatum, spotted dead nettle
Liriope platyphylla 'Variegata,' lilyturf
Lobelia cardinalis, cardinal flower
Tradescantia x andersoniana, spiderwort
Tricyrtis hirta, spotted toad lily

Sources of Shade Perennials

Many charge for their catalogs and then credit that amount to your order.

d = price of catalog deductible from first order

SASE = self-addressed stamped envelope

FCS = first class stamp(s)

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photo by Lauren Springer



In September, the daylily 'Autumn Prince' sends up its star-like flowers.

Places to See Shade Perennials

Bowman's Hill Wildflower Preserve, Washington Crossing, PA

The Scott Arboretum, Swarthmore, PA
Winterthur Gardens, Winterthur, DE
Many private gardens open for tours and special events

Books

**The Complete Shade Gardener*, George Schenk. Houghton Mifflin Company, Boston, 1984. As thorough a book on the subject as ever imagined possible and an absolute pleasure to read.

**Gardening in the Shade*, Harriet K. Morse. Timber Press reprint, 1982. A thorough and pleasant book of special note for our area since the author gardened in the Northeast.

**Gardening in the Shade*, Brooklyn Botanic Garden Record vol. 25, no. 3, #61. Another fine booklet in the series put out by this institution — a lot of information for a very low price.


Shade Gardening, Ortho Books, San Francisco, 1982. A more general but well-written and inexpensive guide.

*Available in the PHS Library.

Culture Note. SLUGS are the arch enemy of many shade perennials. If the effective but poisonous baits on the market are not to your liking, stale beer in a dish, upside-down grapefruit halves, and small rings of sand or diatomaceous earth around the plants have all worked for many people. Pine, juniper, and cedar bark mulch apparently deters them as well. The first step towards control, however, is cleanliness regarding dead plants.

In her spare time, Lauren Springer lectures and writes on various horticultural topics. This summer she will work with unusual perennials at Wave Hill, a public garden in New York City, as part of her master's degree program at Pennsylvania State University

A CHEMICAL USER LOOKS AT INSECT CONTROL

 by Donald Green



Guess who came for dinner — rose aphids.

Sometime in my teens my father, who owns a large suburban garden center, let me help him spray our roses. Before the actual spraying, he showed me how to use the equipment and instilled in me a healthy respect for the chemicals I was to use. The results were predictable: aphids and beetles died, the black spot was arrested and the roses flourished.

Since then I've continued to use garden chemicals myself and recommended, sold to and instructed literally thousands of customers in their proper use. The results have been similarly predictable.

Time has come to free insecticides from

their image as the "bad guys." No one wants irresponsibly to put a load of chemicals in their home or in their garden. We all have families and are aware of the dangers and implications of chemicals. Used wisely, however, they fit very well into an integrated pest management program. Biologicals and organics certainly have their place. Potassium-based insecticidal soaps kill most anything they hit. On the other hand, they offer no residual or long term effect. Pheromone traps substantially lower insect populations of a few more visible species, but also lure them to your landscape in great numbers, thereby invit-

ing damage as the insects make their way to the traps. In the case of severe infestations or repeated problems, the most effective alternative is the judicious use of insecticides.

The key to successful insect control is knowledge and timing. If you know the biology of the insect, or at least what plants it attacks and when the pests will arrive, you can apply the appropriate solutions at the proper time, hence limiting your spraying while maximizing control.

When Using Insecticides:

1. Read **all** of the directions on the label. Don't stop at the number of tablespoons per gallon of spray. Read the fine print from beginning to end.
2. Don't let the precautionary statements scare you to death. Insecticides, like pharmaceuticals, go through years of testing, not only for effectiveness but also for safety in the environment.
3. Make sure you understand how to use your sprayer before you fill it with chemicals. Confidence greatly limits mistakes.
4. Wear protective clothing (long sleeves and long pants, non-absorbant shoes, mask).
5. Don't spray on a windy day. If there is a slight breeze, begin your spraying downwind from the target and walk in a semi-circle toward the wind.
6. Don't spray before rain. You'll only have to spray again, adding to the amount of chemical you put into the environment.

continued

7. Make sure you cover both the top and bottom surfaces of the leaves. Insects tend to congregate in protected areas, more often than not on the bottom of leaves. Spray carefully yet thoroughly.
8. Apply the appropriate material at the right time at the correct dosage. Increasing dosage does not increase effectiveness.
9. Use spreader-stickers in combination with insecticides. They spread the material more evenly over the leaf surface and make it adhere better, thereby increasing the length of effectiveness and often eliminate the need for re-spraying.
10. Most insecticide gives off a rather obnoxious odor. Do not be alarmed. Mist or drift can be harmful — fumes pose no major threat.

Some Commonly Available Insecticides

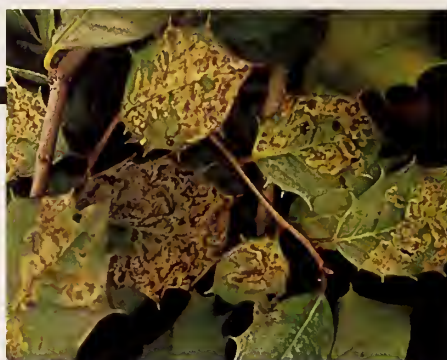
Bacillus popilliae — Naturally occurring, milky spore disease infects Japanese beetle grubs. Sold as Doom or milky spore disease, it is not fully effective until the spores have had time to multiply and establish themselves in the lawn, often up to three or four years.

Bacillus thuringiensis — BT is a naturally occurring bacterial disease organism that infects most caterpillars. Sold as Thuricide, Dipel and BT. Non-toxic to birds and humans. Effective on leaf chewing caterpillars and tent caterpillars, webworm, gypsy moth and many vegetable-eating larvae.

Diazinon — Moderately toxic insecticide effective on both soil insects — beetle grubs, sowbugs, millipedes, ants, cutworms and chinch bugs, and many sucking insects — aphids, lacebugs, leaf miners and mealy bugs among others. Safe on most edibles. **Check label to see how close to harvest diazinon may be used on your specific crop.** Make sure to read directions to apply the correct dosage for the target insect.

Dursban — Sold as Ortho Lawn Insect Spray and Home Pest Insect Control. Moderately toxic material effective on ants, fleas, earwigs and ticks. Can also be used for lawn infestors such as sod webworm and chinch bugs.

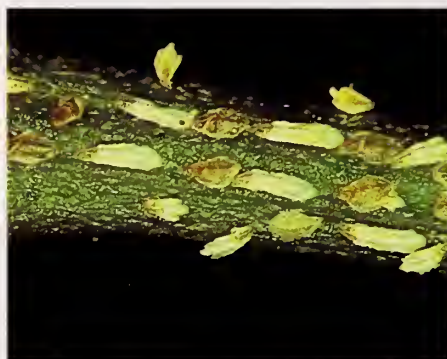
Isotox — Active ingredient Acephate, also sold as Orthene, this material is a moderately toxic, systemic pesticide extremely effective in the control of most sucking, chewing and scale insects. Lasts within the



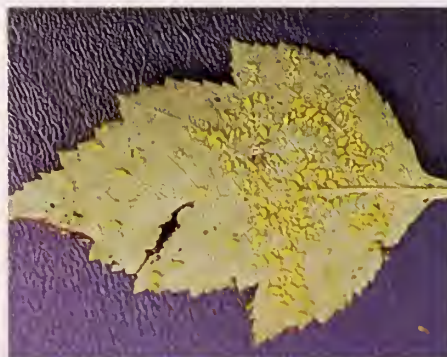
Holly leaf miner



Calico scale on *Gleditsia*.



Euonymus scale; males are white, females dark.



Four-spotted hawthorn aphid.

system of the plant for 7 to 10 days. Normally two or three applications will control most major infestations. **Do not use on edibles.**

Lindane — Highly toxic pesticide used primarily for the control of wood-boring insects: rhododendron, peach, dogwood and birch borers. To be used as a bark spray, particularly on the lower trunks, lower limbs and at the branch crotches where the eggs are most likely to be laid.

Malathion — One of the earliest insecticides in general use, malathion is still reasonably effective on a broad spectrum of insect pests including aphids, mites, mealy bugs, lacebugs and spittle bugs. Safe on most edibles up to seven days before harvest.

Pheromone Traps — Most widely distributed as gypsy moth and Japanese beetle traps, these sex attractants trap flying adult-stage insects. Traps significantly reduce insect populations. Place them as far from and downwind of the host plants to limit damage as the insects fly to the trap.

Pyrethrum — Derived from the flower heads of chrysanthemum. Effective on many sucking insects. The least toxic insecticide. Often sold as a liquid in combination with rotenone.

Rotenone — A plant-derived insecticide harmless to warm blooded animals. Safe control for beetles, thrips, aphids and some borers on edible crops.

Safer Soap — Potassium-based insecticidal soap derived from plant and animal fats. Non-toxic to humans and animals, no groundwater contamination. Good knock-down for aphids, mites, whitefly, scale and many other insects. Safe on food crops. Lacks any residual or long-term effects and must be applied often for effective control.

Sevin — Active ingredient carbaryl, available in liquid, wettable powder and dust formulations, this low-toxicity material is effective on most leaf-eating insects. These include Japanese beetles, gypsy moth, tent caterpillars, tomato hornworms and bagworms. Safe on fruit or vegetable crops — again, check time between spray and harvest.

Sticky Traps — Sold as Sticky Bars, Whitefly Attack and Ortho Whitefly Sticky Traps, these traps attract pests by their yellow color. Somewhat effective on aphids, leafminers, leafhoppers and whiteflies. Sticky bands and sticky tape are also available to prevent caterpillars and other trunk-crawling insects from reaching foliage to feed.

Having spent much of the last 20 years in the field of horticulture and interior landscape, Don Green has recently formed his own horticultural consulting company (Green Consulting in Glenside, Pa.) catering to the needs of budding gardeners in the Delaware Valley.



Controlling Insects — What To Do When

Insect	Description	Host and Infestation Time	Controls
Aphids	Slow moving, oval or pear shaped 1/32" to 1/4", many colors. Suck sap from anywhere on a plant, but concentrated on younger, more tender growth.	Infest nearly all types of plants from late April through frost	Soap - spray with Safer Soap every few days until infestation is reduced Chemical - Isotox, Malathion, Pyrethrum-Rotenone, Diazinon
Mites	Eight legged, almost microscopic. Weave fine spider-like webs on underside of leaves. Mites suck water and chlorophyll causing a chlorotic or yellowed look. Often leaves appear wrinkled	Arborvitae, spruce, pine, hemlock. Also most indoor plants. Attack plants from May through August.	Soap - Spray every three days. Oil - Applications of Volck Oil or Scalecide a week apart often reduce infestations. Chemical - Pentox or Isotox Kelthane is now off the market.
Leaf Miners	Larvae of certain sawflies, moths, flies and beetles. Feed between the upper and lower surfaces of the leaf creating serpentine tunnels visible on the leaf surfaces.	Birch, holly, boxwood, iris, columbine, chrysanthemum and some vegetables. Prevalent early May through late June	Chemical - Best prevented before major damage. Use sprays of Isotox, Orthene or Lindane. Start sprays May 1st and continue until mid-June. On vegetables use Diazinon
Borers	Larvae of clear-winged moths and bark beetles, inside the cambium layer of branches and stems. Circulation is impeded and often either the branch or the whole plant dies. Look for sawdust-like material at the base of the tree.	Infest many plants. Prime hosts include rhododendron, birch, dogwood, ash, lilac, nut and fruit trees. Spray to prevent infestation May 1st through mid-June.	Natural - wrap stems with tree wrap to prevent penetration. Pheromone traps may soon become available Chemical - Lindane or Thiodan. Dursban may work as well.
Lacebugs	Named for their lacy wings, lacebugs can severely damage shrubs. Gathered on lower leaf surfaces, they suck plant sap. Leaves appear speckled on the upper surfaces. Undersides tend to be sticky	Hosts include andromeda, azalea, laurel, pyracantha, and cotoneaster. Damage begins in late April and continues through July	Soap - Can be effective if total coverage is obtained Chemical - Isotox, Sevin, and Diazinon all give good control if applied twice at 10 to 14 day intervals.
Scale	White, brown or black, flat or bubble-like insects. May be either very hard or soft bodied. Scales remain stationary and may look almost natural on either leaves or stems. Their armor makes scales most difficult to control.	Scales attack almost every variety of ornamental and indoor plant. Prime hosts include lilac, hemlock, pyracantha, euonymus and many others. Sprays are more effective when most scales are in the crawling stage in May and June.	Soap - Safer Soap used twice weekly. Oil - Volck oil or Scalecide at the lower, summer rates applied two or three times at 10 day intervals. Chemical - Isotox or Orthene three times 7 to 10 days apart. Sevin, Malathion for fruit trees.
Beetles	Black headed, shiny bodied insects 1/4" to 1" long. Skeletonize leaves with their constant eating. The larval stage (grubs) feed on grass roots, often causing extensive lawn damage.	Feed on all types of plants. Favorite hosts include roses, birch, oak, apple, walnut and willow. Most damage occurs from June through August. Grubs do damage in April and May, then again in August through October.	Natural - Doom and milky spore disease on turf to kill grubs. Pheromone traps - beetle traps often effective. Empty daily. Chemical - Sevin, Isotox on non-edibles. Sevin only on food crops.
Weevils	Night feeders, appearing like long, thin, pointy headed beetles. Visibly damage foliage causing crescent shaped, often jagged injury to leaf edges. Though not detectable, even greater harm occurs below the soil line.	Rhododendron, yew, azalea, laurel and hemlock. Infestations begin in June and continue through summer. Spray as soon as damage is apparent	Chemical - Isotox or Orthene on non-food crops only For root weevils on edibles use Malathion, Rotenone or Diazinon
Snails and slugs	Identified by their slime trails and repulsive looks. Populations increase in wet weather. Cut down plants at the soil line, or defoliate a young plant leaving only the main stem.	Normally feed on tender seedlings or damaged weaker plants. Snails and slugs arrive in early spring and stay through late autumn.	Natural - Beer in a shallow dish or melon rinds as traps Chemical - Metaldehyde baits (Deadline, Snarol, Buggetta and Slugetta. Consult label for safety around edibles)

the plantfinder

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If you can't locate a much wanted plant send your name and address (include zip), the botanical and common name of the plant to Plant Finder, *Green Scene*, PHS, 325 Walnut St., Philadelphia, PA 19106.

WANTED

Paulownia tomentosa, *Princess Tree*. We would greatly appreciate your help in locating this plant. Virginia Clark, Botanical Education Coordinator, Cheekwood Botanical Gardens and Fine Arts Center, Nashville, TN 37205

Bamboo (seeds or division), especially: Phyllostachys moso, P. dulcis (Sweet-shoot), P. sulphurea viridis (Green Sulphur), P. niger boryana (Black), Bambusa pygmaea, B. nana, Pseudosasa japonica, and Sasa senanensis nebulosa. Contact A.W. Iacono, *Rose Cottage*, 1191 Creek Road, Leola, PA 17540

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A richly perfumed and colored rose blooms again after rescue from a construction site.
See page 4

GREEN SCENE

THE MAGAZINE OF THE PENNSYLVANIA HORTICULTURAL SOCIETY • JULY/AUGUST 1988 • \$1.50



WATER

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4



8



31

Correction: "Choice Perennials For Shady Gardens"

Warren Pollock called us to say the *Hosta* mentioned on page 31 (3rd line from bottom) of the May issue of *Green Scene* is *H. sieboldiana* 'Elegans,' **not** *sieboldii*. They are different plants. Thanks, Warren.

Front Cover:

photo by Walter G. Chandoha

Back Cover:

photo by Anne LaBastille



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the green scene / july 1988

GIVE US OUR DAILY WATER

 Jean Byrne

Water can revive and refresh the most delicate flower and it can erode a canyon; it is necessary for our daily bread, and it can wipe out civilizations when there is too little or too much. Water: it is definitely something we treat with respect. Most respect comes when we are threatened with its loss.

Conservationists constantly remind us that the resource is finite; that the water on earth will not be replenished; that the water we now have is no more than has always been here. Conservationists chide us frequently for our careless stewardship. Some industrialists argue that water use has created progress and that we thwart progress as we wrangle endlessly about whether to open or close our pumping stations.

When we planned this issue of *Green Scene* on the subject of water a year ago, we focused mainly on the gardener's needs for water. But two small local items broadcast on National Public Radio, one in late April and one in early May, reminded us that water is never really out of the news.

The first item was a report on pesticide contamination of some wells in New Jersey. The newscaster concluded the brief report with the worried observation that the problem could affect the quality of life in New Jersey. A hurried call to Walt Chandoha, a member of PHS's Publications Committee, a resident of northern New Jersey, a nationally respected garden writer and a member of the South Branch Watershed Association's board, put us in touch with their executive director Denise Naidu Snyder. Snyder checked every possible agency for the source of the story, but could not trace it. Since her own agency offers free well testing with membership (they tested 2,000 wells last year), we asked her to write a story about the roles of local watershed groups. In a very short time, she did that. There's a caveat, not necessarily included in her article. Watershed groups vary from area to area and are only as good as the citizens who participate. Snyder says even the well testing program might not yet be asking the right questions, looking for the right things. Are we right to leave these problems up to a few gadflies to rouse us from our apathy or our complacency?

About a week later, I heard the second story with my morning coffee. "No emergency yet," cautioned the newscaster, but the residents of Mt. Laurel, New Jersey were being asked to follow a system of watering whereby houses with even numbers would water on certain days, and houses with odd numbers would water on others. Water reserves were normal, we were assured, but they were just precluding the possibility that all of Mt. Laurel would hose down their lawns at the same time. It made you wonder, do they know something they're not telling us?

It's good to be reminded that we are all responsible for conservation. I suggest you read carefully Anne LaBastille's "Celebration of Water" beginning on the following page. While she rejoices in our bounty of water, Anne, whose daily water needs are hauled home in a bucket from a lake, offers some simple suggestions that each of us can follow to conserve water in our homes and gardens. She also offers a list of organizations that can guide us to a more responsible stewardship of this precious resource. For some of us, it will be taking a first step.

In Celebration of WATER



by Anne LaBastille



▲ The author lives on a lake in the Adirondack Mountains. She draws water for drinking, bathing, cleaning and gardening from the lake in buckets as needed.

Every time I walk down to my dock for a bucket of water, I send a silent blessing skyward for this magical liquid. Living as I do without electricity, a modern bathroom, or year-round running water, that bucket means survival. Without it, my rustic life style deep in the Adirondack Mountains of upstate New York would not be possible. Nor anywhere else, for that matter.

Dipping into my lake gives drinking water to me, my two German shepherds, and my flowers: red geraniums and *Salvia*, white petunias and foxgloves, yellow marigolds and zinnias. It translates into hot water with which to brew espresso and cook meals, then wash dishes afterwards. It means soapy fluids to clean my log cabin and launder my dirty jeans. More than all this, the water in my lake brings wildlife to watch. Sometimes at dawn a trio of otters chirp their greeting when I slip into the lake to skinnydip. Or, swallows swoop above

my sailboat on sunny afternoons. Come sunset, bats keep me company as I canoe past beaver lodges and dams. Then, water alchemizes from a utilitarian commodity, wild environment, and transportation system, to an art gallery. The swirls of rose, turquoise, and ebony behind my paddle, or the reflections of firs on still bays, can never be matched by any artist, in my opinion. Finally at night I fall asleep more sweetly with the trill of peepers in my swamp and the purl of water from its stream.

Whenever I scan the mountains around my cabin, I'm also reminded how important water was and is to these peaks. Twelve thousand to 18,000 years ago glacial ice polished them down and prettied them up until the Adirondacks I know and love today were created. This six-million-acre Park attracts almost 10 million visitors a year because of its gorgeous hill-and-lake scenery.

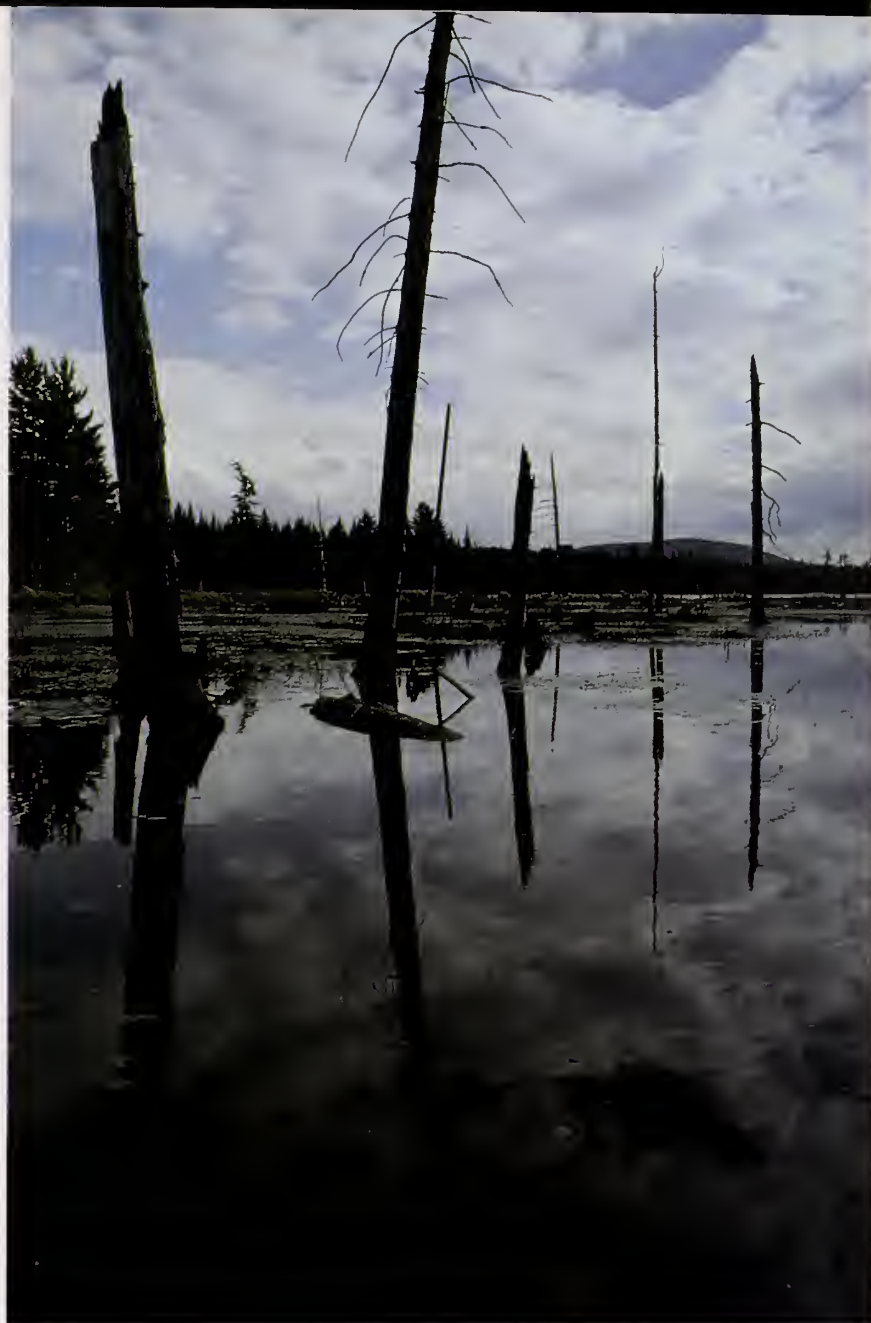
the invisible threat

Sound idyllic? Maybe yes, maybe no. There's a dark side to the celebration of water that affects my life and everyone else's in the Northeast. That invisible threat is acid rain. It falls more abundantly and corrosively in the western Adirondacks and western Pennsylvania than anywhere in the United States. Because of acidic deposition, my lake has become 100 times more acid in the last 55 years. So have hundreds of other lakes, reservoirs, and streams. The water that my dogs and I drink (and millions more humans and domestic animals) may be loaded with aluminum leached out of the soils, or copper and lead dissolved from water lines. Several of my neighbors have had to replace their plumbing after it was eaten through by aggressive acidic water. Moreover, lead and copper are known to be toxic in high enough levels. Some research suggests that elevated

continued

Defoliated spruce trees in acidified lake in the western Adirondacks. Acid rain falls more abundantly and corrosively there and in western Pennsylvania than anywhere in the United States.

Household water is a year-round need.



aluminum levels in drinking water and food may be a cause of Alzheimer's disease.

How does my garden grow? It doesn't. I've given up. Without enormous amounts of lime and fertilizers it's hard to produce vegetables at 2,000 feet in the Adirondacks where precipitation is much higher than at lower elevations. Experiments in the Midwest where polluted air and acid rain also occur, have shown significant losses in soybeans and other basic crops. In addition, the huge virgin red spruces on my land have been dying over the past few years, also from acid-rain-linked phenomena and stresses.

I've seen other recent water-based scourges up here that are increasing throughout the Northeast. One is pollution causing waterborne diseases — *Giardia*, hepatitis, amoebic dysentery, mild forms of gastroenteritis. During the 20-odd years in my cabin I've never gotten ill from those

buckets of lake water. But in large cities and suburbs, outbreaks of waterborne diseases are becoming common. Also, I've been to beaches in New Jersey, Long Island, and Costa Rica strewn with hospital refuse like syringes and IV bottles, as well as plastic and glass litter, borne in by ocean dumping and currents. And pollution doesn't stop with waterbodies or shorelines. It is under our very feet, as toxic wastes and pesticides, seeping into aquifers and ground water on which millions rely for drinking water.

A mixed blessing is water recreation, which has increased dramatically from the "good old days." More and faster motor boats are causing shoreline erosion, siltation, noise pollution, and boating accidents. More and more swimming pools, jacuzzis,

hot tubs, and golf courses are appearing. These luxuries use inordinate amounts of fresh water. People also insist on washing fancy cars and watering green lawns. It's hard for me to rationalize a world where much of the human race uses approximately three gallons of water a day (the equivalent of six of my buckets) for all needs, whereas the average American uses 70. And for every time someone reads a thick edition of the Sunday paper, 150 gallons of water are used in the paper industry to produce it.

what each person can do

Given the threats and pressures on pure water, is there hope we'll continue to enjoy this magical liquid? Yes! I think so. As long as we battle to save this resource,

intelligently, persistently and lovingly, there's hope. You can start at home with a "Stop Drops" action. Make sure that every tap, hose, toilet, and pipe is drip-free, even if it means hiring a plumber. (And we all know how expensive *they* are.) Consider it your civic responsibility. Install a microflush toilet, or drop a brick into your tank, to save water on flushes. Do your dishes by hand, not dishwasher.* These three strategies can save hundreds of gallons of water per year and pay for themselves.

Another tactic is to replace your green lawn in part with shrubs, cypress chips, pebbles, or native tall grasses. After all, a close-cropped turf is strictly a northern European and British fashion. It's hardly in keeping with, say, mountainous landscapes or coastal pinewoods.

There are several conservation-minded citizen and lobby groups to join that will allow you to fight for laws to control acid rain, air and water pollution through the Clean Air and Clean Water Acts. Other campaigns are on-going to stop toxic wastes and ocean dumping.

Sometimes you can find a cause célèbre right in your own backyard. Look around your community, note what's wrong, and go out and fix it. For example, at my Adirondack lake some of us were concerned about grey and black waters possibly seeping in from old or broken septic systems. We formed a citizens' "Lake Pollution Survey Committee." Sporting T-shirts with an outhouse and an owl on them, we volunteered time on weekends to canvass 80 cottages, put dye tablets in toilets and kitchen sinks, check out septic systems, and even dig dry wells for folks who couldn't handle a pick and shovel. The result? In three summers, we brought the fecal *E. coli* bacterial count down from 1,250 to 2. An eminently drinkable lake.

I believe that as long as people want clean spring rains soaking their gardens, dewy meadows to walk barefoot through, and clear lakes to swim in at dawn, we'll continue to protect and celebrate water.

*Some statistics show a dishwasher is more efficient; whichever method you use, try not to waste water.

●

Anne LaBastille is an ecologist, author, lecturer, and Adirondack guide. LaBastille has received a Citation of Merit from The Explorers Club, a Gold Medal from the World Wildlife Fund, and in May, was the first woman to receive the Jade of Chiefs from the Outdoor Writers of America Association for excellence in writing. She has been a Commissioner of New York State's Adirondack Park Agency for more than 10 years. LaBastille has written four books, *Woodswoman*, *Women and Wilderness*, *Assignment: Wildlife*, and *Beyond Black Bear Lake*.

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WATERING HOUSEPLANTS

An Expert Discusses the Principles

 by Joan Feuer

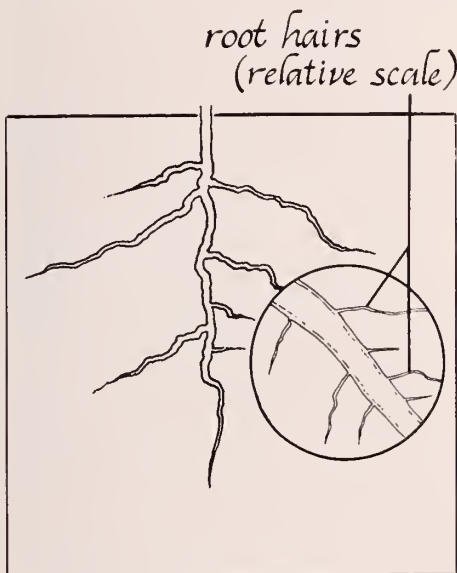
From the lowliest bacterium to the superbly complex biochemical machine called man, water is the driving force. That simple molecule is critical to every body process: cell integrity, assimilation, circulation, temperature regulation, even the elimination of wastes. We humans are given recognizable signals when the body's water balance is tipped. Thirst tells us to drink; the nag of a full bladder makes us reduce liquid volume. Social pressure from others keeps us sufficiently clean that our pores do not become too clogged to perspire. A persistent cough unrelated to infection informs us that the air is too dry for the well-being of our mucous membranes. You would think that we would learn from these natural signals and apply the information to

other species, particularly when we bring those species into our artificial environment; unfortunately, we don't. Plants especially suffer from our thoughtlessness; more greenery is killed by water-related problems than by any other single factor. And it's all unnecessary. Though plant metabolic processes are quite different from ours, the basic needs are very much the same. Plants need to drink when thirsty; they need to eliminate excess when over-filled. They need humidity to 'breathe' properly and they require clean 'skin' so that their pores do not become too clogged to 'perspire.' Let's take a good, hard look at the anatomy and physiology of the green plant. From this, we should be able to draw some conclusions about proper watering.

Ignore the old wives' tale about killing an african violet by getting the leaves wet because it's simply that, a tale. Violets love to take baths, particularly if they live in the kitchen. . . always make certain the plants are dry before being put to bed, i.e., left in the dark. This applies to all plants. Never let them enter their dark phase with pockets of water sitting in the leaves.

the root

Root hairs, the finest projections, are coated with a layer of cells called epidermis, the equivalent of human skin. Unlike human skin, however, root skin is not keratinized (hardened off) and impervious to those things that come in contact with it.



Rather, root epidermal cells are contained by a semipermeable membrane, which permits osmosis. Put simply, osmosis is a process in which any ion or molecule of small enough diameter passes through membrane openings. The flow is always in the direction that will equalize the concentrations on both sides of the membrane. Several water-related problems become immediately apparent. Clearly, bone-dry potting medium will suck water out of the root, causing the plant to wilt and eventually die if water is withheld. Less clear, but still understandable, is that repeated over-fertilizing will build a concentration of the various minerals within the plant body that can reach a toxic level. What is not at all clear to many growing enthusiasts is the mechanism of over-watering. Oh, you know when you've done it. Your favorite african violet rots before your eyes when you only

watered it once a week as a friend instructed. That big cactus you spent so much money on gets soft and eventually collapses, when you only watered that once a month. Why? And why does that specimen-size *Ficus benjamina* alternate between throwing out drab brown leaves (a sure sign of overwatering) and dropping dozens of lemon yellow leaves, the weeping fig's plea for water? Let's finish with our discussion of plant structure before finding answers.

the stem and leaf

These might be likened to the plant's conduit and factory. Water and nutrients absorbed by the root are carried up the stem by negative pressure created by photosynthetic activity in the leaf. As metabolism occurs, cells are built and fed, and waste products are given off through stomata, pores in the leaf surface (primarily on the underside). Excess water is also given off as vapor in an attempt to regulate surface temperature. Obviously, the hotter and drier the atmosphere, the more water given off. Still, plants have limits. Few are capable of giving off enough water through the stomata to counteract gross overwatering. Now, let's look at the mechanisms of the green plant's most deadly enemy.

most commercial potting soils are writs of execution

Over the years, I have used practically everything on the market, from the super-market generic brands, to fairly expensive mixtures, and except for those labeled "seed starting mix" (normally half peat and half vermiculite and inappropriate for long-term growing), I have never found a potting soil I would recommend. Occasionally, I will use one as an organic base to which I add a variety of things, but I much prefer to mix from scratch. Why? Potting soil manufacturers aim for a common denominator, the average plant. Unfortunately, few species of plant know that they're supposed to be average. One of my gripes with com-

mercial potting soil is that most are packaged damp or outright 'wet,' which creates numerous problems. The soil is supposedly sterilized. But none of the sterilization processes used will kill spores, and dampness encourages them to hatch. The same applies to insect eggs. Some of the mixes are packaged with ventilation holes in the bags; others are put there by careless store clerks. Either way, you have a perfect little incubation chamber for flora and fauna, which might eventually kill your plant. How many times have you potted up a seedling in 'sterilized' soil and had it succumb to 'damping off' (fungus) in a matter of days? When I do use commercial mixes, I always use a fungicidal solution for the initial watering.

My biggest gripe, however, is the consistency of commercial potting mixtures. The material is put through a chopper that produces particles of relatively uniform size, most of them too small for healthy plant growth. If you want a comparison, go out into your garden and spade up a shovelful of soil. If your soil is in good condition, you'll find a cornucopia of particulate matter: lumps of half-decayed organic material, particles of sand, pieces of leaf, tiny pebbles, old insect skins, and channels and air pockets created by rain, by earthworms, and by the odd shapes in the soil itself.

air is critical

If you could sufficiently aerate the water you give to your plant, the specimen would probably thrive in wet cement. Hydroponic growers do something of the sort. Some bubble gasses through the nutrient broth while others trust the large surface area of the water to allow enough gas to dissolve to meet the plant's needs. Soggy potting soil allows no air in because water, rather than air, fills the pockets between particles. The finer and more regular in size these particles, the more likely the situation. There are two ways to overcome this problem. The easiest is to add materials of varying

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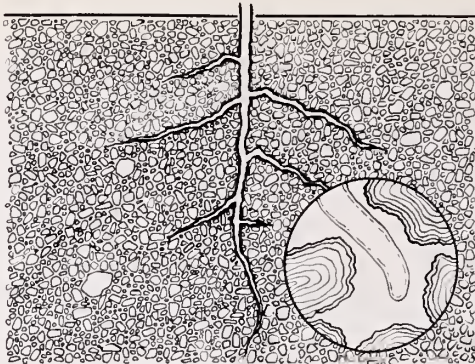
size to the potting mix. Vermiculite and perlite come in neat little bags for convenience, but are expensive. Cheaper, or free, materials include, shattered brick, aquarium gravel, charcoal (good for other purposes), coarse sand, even styrofoam worms or chips for large plants. The other method of supplying sufficient air is to carefully gear your watering schedule to the individual plant. But how? As Hamlet would say, "That is the question."

water expertise at a glance

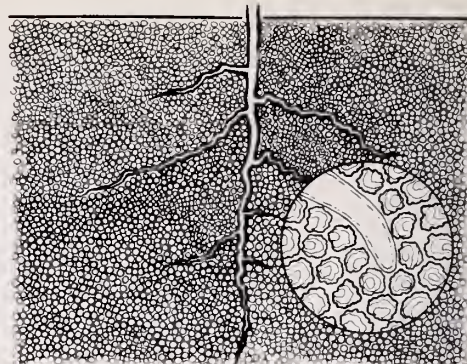
You can become an expert waterer by simply looking at your plant. Sound too easy to be true? It's not, if you know what to look at. "What" includes an examination of three plant parts discussed above: root, stem, and leaf. Once you have learned to examine these three, you will not even need to know what kind of plant it is to water it properly. Here are the rules of (green) thumb.

1. The more extensive and finer the root system, the higher the water requirement.
2. The more woody the stem, the lower the water requirement.
3. The thinner the leaf, the higher the water requirement.

Simple? Yes, indeed, though there are peculiar combinations. The woody *Ficus benjamina* has thin leaves and a fine, feathery network of roots. Moreover, its growth is seasonal. In other words, it has a high



coarse, irregularly-shaped soil particles provide greater aeration



fine, regularly-shaped soil particles provide less aeration

water requirement when active and less when dormant. You don't need a degree in biology to determine when the dormant period is. Just look at the plant. When it stops throwing out new leaves, cut back on the water. Keep in mind that air requirement varies with that of water, so that while *Ficus* needs a great deal of water, it also requires a commensurate amount of air. In its rapid growth season, therefore, it must have vast amounts of water but also perfect drainage to thrive. Commercial potting soil will kill it because you get fluctuations between a water-logged condition and drought. The best substrate for *Ficus* has a high percentage of drainage material in it. Coarse sand or coarse perlite are good. Don't make the mistake of using a mix designed for cactus. Though the drainage is ideal, the mix is far too alkaline.

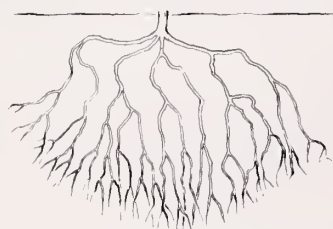
In contrast, succulents are light drinkers, a fact immediately apparent after looking at their small, shallow root systems and

inflated stems. What water they do absorb is stored in these stems to get them through periods of drought. It is not enough to let the soil surface of a succulent dry before watering; you want the entire pot to dry out thoroughly. Don't be afraid to stick your fingers in the soil. That's the best way to determine how wet or dry it is. And don't overpot a succulent. The best way to control watering of the 'dry-loving' plants is to contain them in the smallest pot that will support their superstructure. That way, you have a limited amount of substrate to retain water. If that substrate also drains quickly, it will be very hard to overwater.

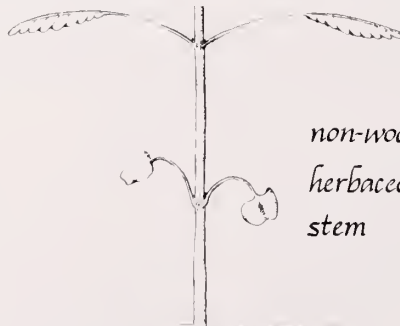
Plants like *Spathiphyllum*, with paper-thin leaves and an extensive, fine root system, are very heavy drinkers. The best way to water these is to let them droop a little before watering until you get into the rhythm of how often it is necessary.

There are also mitigating factors. Waxy leaf coatings reduce transpiration (loss of

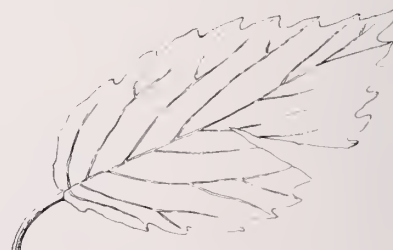
High Water Requirement



fine, extensive root system



non-woody,
herbaceous
stem



thin leaves

Low Water Requirement



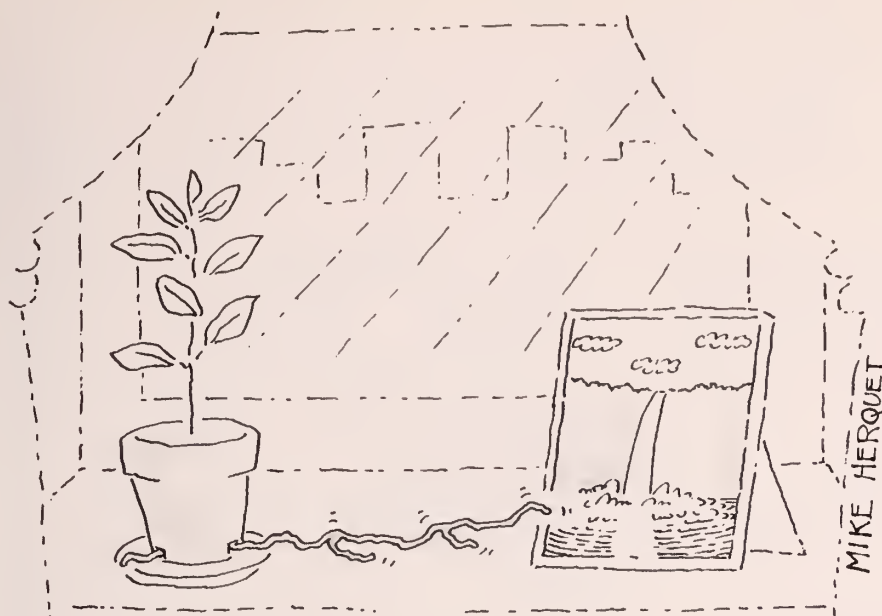
small, shallow
root system



woody stem



thick leaves



water through the leaf). *Schefflera*, for example, has fairly thin leaves but loses little surface water because of its protective coating. The "bloom," as it's called, also protects against sunburn and is so effective that the plant thrives in the Australian desert. Leaf hairs reduce surface temperature and, subsequently, water loss. Your african violet needs far less water than you might believe. Often, the problem of overwatering in these plants is caused by dirt and grease. Kitchen windowsills are popular places for growing african violets, and kitchens are greasy. Grease clogs leaf pores, limiting the plant's ability to give off water, so that even with a very light watering schedule, the root system will rot. Ignore the old wives' tale about killing an african violet by getting the leaves wet because it's simply that, a tale. Violets love to take baths, particularly if they live in the kitchen. Take a few precautions, however. Bath water should be tepid, not hot or ice cold. If grease is a problem, make a mild solution with dish-washing liquid, and always make certain the plants are dry before being put to bed, i.e., left in the dark. This applies to all plants. Never let them enter their dark phase with pockets of water sitting in the leaves.

Two more important factors determine a plant's water requirements: temperature and humidity of the environment in which you want to grow it. The hotter and drier the atmosphere, the more water evaporates from the leaf surface, and therefore, the more water it requires. A prime group of sufferers here are the ferns. People have

this image of ferns growing in a steaming jungle. Perhaps that was true when the dinosaurs walked the earth, but those species of fern died out with the giant reptiles. Most ferns these days come from temperature areas, so get that Boston fern out of the southern window over the heat vent and find it a spot with mottled sunlight as close to 60° as possible. It will green up beautifully, need less water and misting, and stop dropping millions of little leaflets onto the floor.

the outlaws

No system is perfect. Not all plants follow the rules. The prime exceptions are the epiphytes, plants that grow on branches of trees, or even on bare rock. These plants absorb all the necessary materials from rain, and from whatever organic material they can catch on the fly. Even among the epiphytes, there are differences. Bromeliads use their roots almost exclusively for attachment to a surface. Water and nutrients are absorbed through the leaves, which may form a cup. Food for an epiphytic brom often consists of organic material, which falls into the cup and decays there (often the bodies of insects, which drown in the "pool"). Needless to say, when you're fertilizing a cup-bearing brom, the food goes in the cup, not in the pot.

In contrast, epiphytic orchids do get both food and water through their root systems. In the wild, food consists primarily of the byproducts of symbiotically-growing fungus. Water comes only from rain, dew, and mist. The epiphytic orchids are

well adapted to filling their needs during the course of a short shower. Their roots are unlike any other in the plant kingdom. Coated with a thick, corky, white material called velamen, the orchid root sucks in liquid like a sponge. The water is rapidly transported to holding tanks called pseudobulbs for later use (much like the cactus stem). After a drenching, the velamen dries quickly, permitting gaseous exchange but virtually no water loss through the root. Letting the velamen remain wet for any length of time is tantamount to inviting rot. If you've tried to grow orchids and had them rot before your eyes, try this. Instead of using one of the commercial mixes (fir bark plus other goodies is the most common), pot up your epiphytic orchid in chopped quarry rock. Make sure the orchid is an epiphyte and not a terrestrial and make doubly sure that the rock is not limestone, which is far too alkaline for a happy orchid. You just about can't overwater an orchid potted this way. Of course, you can under-water it and you will have to supply every nutrient the plant requires, which means you will not be able to use some of the cheap fertilizers, which contain only the big three: nitrogen, phosphorus, and potassium. Still there are other fertilizers on the market that contain the micronutrients, copper, manganese, and iron for example. I grew a particularly difficult specimen in chopped rock for six years. It flowered twice a year (it was supposed to flower only once) and got to enormous size. The plant eventually died when I went away on vacation and left it outside, trusting the rain to water it for me. Of course, we had a drought.

Basically, watering does not have to be the problem it is. Look at your plant; determine its requirements from its physical composition, then treat it accordingly. I also strongly recommend that you get into the habit of mixing your own soil. If nothing else, add drainage material to the commercially-produced sort. If you do, the worst that can happen is that the pot may dry out faster than you expect and the plant may wilt slightly or drop a few leaves. Stepping up the watering schedule is, however, a far easier correction than attempting to dry out a soggy pot.

Joan Feuer is a writer with a background in medical biochemistry. She worked for a year at a florist/greenhouse and five years as an interior landscaper. She grows orchids, bromeliads and succulents. Feuer lectures on houseplants and orchids and has written numerous magazine articles about plants.

H₂O, WASTE NOT, WILT NOT

Managing Water in Your Garden



by Ed Lindemann

Without water plants will wilt and eventually die; with adequate water plants will survive and flourish. Like so many good things, too little can be as harmful as too much. There is only so much water on this earth and the time has come for gardeners, along with everyone else, to responsibly analyze how effectively we manage our own watering.

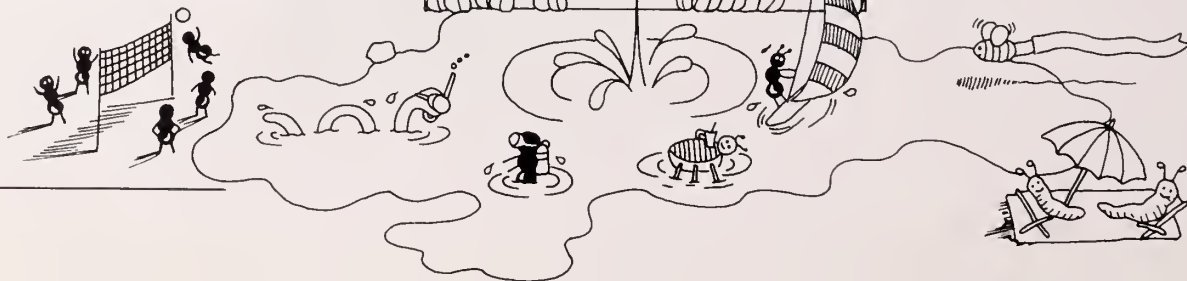
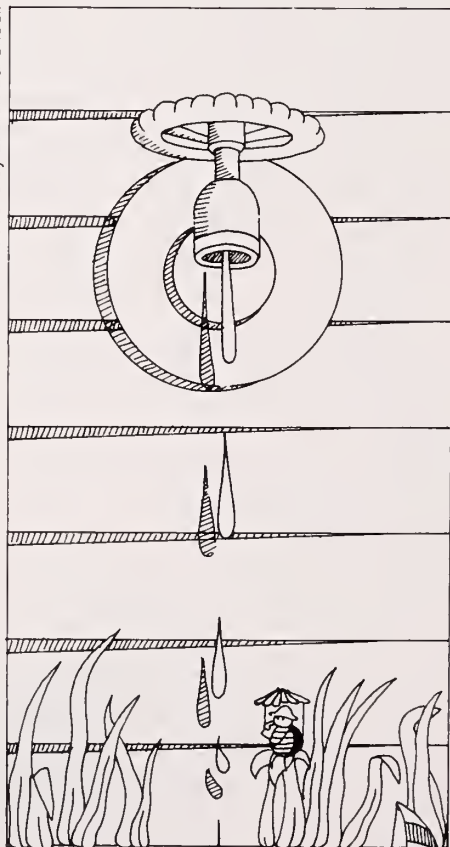
To determine how well you manage your garden watering begin in the garden itself. First divide up your particular garden's watering needs. Are there a lot of container grown plants? What are the soil conditions? Areas with lots of new construction usually tend to have poor quality soil. What is the ratio of paved areas to planted areas? What are the various light and shade conditions as well as the various wind conditions in your garden?

The next garden watering management step is to look at and compare the equipment you have and what is available. Look over the watering and irrigation sections of some of your favorite catalogs. Visit several garden centers to see the latest watering equipment on the market. (See Sally McCabe's article about hoses in this issue.)

Survey your own watering practices. Do you have a watering schedule? If not, de-

velop one. List the areas of your garden that need watering 12 months of the year. Remember that many trees and shrubs can suffer a drought even during the winter if the temperatures are mild and the amount of rain or snowfall is less than adequate. Container grown trees and shrubs that are a permanent part of the landscape design should be watered all through the year. A thorough soaking every three to five weeks will usually carry them through the winter safely. It is a good idea to have a garden watering schedule for all the areas of your garden during the growing season. There are no hard and fast rules because the requirements of each garden and area within a garden will differ. The idea is to have a schedule on which to base your watering habits rather than to water on a whim with no rhyme or reason. To some extent the weather will govern your schedule, excessive rainfall or extended periods of warm dry weather will alter the amount of watering, but not the basic schedule. Consider the time of day when working out a schedule. Avoid watering plants in the hot mid-day sun. Fungus and disease may be more prevalent if plants are constantly moist at night. Sprinkler systems and family activities require a schedule for their time on the lawn.

illustrations by Lauren Baxendell





After you have developed a workable watering schedule evaluate your watering equipment. Start at the faucets. Check for leaks. Many gallons of water are wasted because garden faucets drip. Next check the connections for hoses, nozzles, sprinklers and soaker hoses. Replace missing or damaged washers. A leaking connection will waste as much water as a dripping faucet. Upgrading some of your equipment may help to conserve water in the long run. Adjustable sprinklers that allow a selection of the coverage area can, over the course of a gardening season, save thousands of gallons of water. In addition to adjustable portable lawn sprinklers, installed irrigation systems should have sprinkler heads that direct the water onto the lawn area only and avoid watering the walks, driveways and patios. The same principles apply when watering vegetable, flower and shrub beds: concentrate the water to these areas specifically. Consider the advantages of drip over spray irrigation for plantings. Virtually all of the water that a plant absorbs is taken in through the plant's roots, so while often attractive, sprinklers and irrigation systems that spray water into the air tend to waste a percentage of the water.

When using hand watering equipment select nozzles that have a spring shut-off. Watering wands and fog nozzles should always be equipped with a shut-off valve. As with all gardening tools, provide preventive maintenance for your watering equipment on a regular basis. Lubricate

moving parts. Clean the rose attachments to sprinkling cans and watering wands regularly as well as the heads of built-in irrigation systems.

Consider investing in a timer. Sophisticated built-in irrigation systems often have optional complex control panels that permit the gardener to program when, how much and where to distribute the water. Small portable mini-computer timers can be attached to faucets. They will automati-

Mulch is probably the biggest water saver in a garden. Several inches of mulch on all planting beds will reduce evaporation and conserve soil moisture.

cally turn the water on and off while you are away from the garden. Some even come with a moisture measuring device that overrides the system when rainfall is sufficient. In addition to a well-planned watering schedule and the choice and proper maintenance of watering equipment some basic gardening practices will enable you to further conserve water. Don't fill your containers to the rim with the planting medium. Small pots, those under 18 inches in diameter should have approximately one inch of space between the top of the soil and the top of the rim. This area will act as a reservoir when you water. Flood the pot, and the soil will gradually absorb the water. If the soil is filled to the rim there will be no

space for the water to go and it will wash over the sides and be wasted. Larger containers for trees and shrubs can have a larger space left at the top. Mulch is probably the biggest water saver in a garden. Several inches of mulch on all planting beds will reduce evaporation and conserve soil moisture. When planting new plants raise a 2-3 inch ring or saucer-shaped area around each plant. This saucer of soil will allow you to flood or puddle the plant and hold the water in the area of the root ball to prevent it from running off along the surface before it can be absorbed. Cover the ground inside with a porous mulch such as woodchips or bark pellets. The mulch will prevent both soil compaction and surface evaporation. Heavy clay and sandy type soils should be properly conditioned so that they retain a sufficient amount of moisture for proper plant growth without drying out too fast or staying overly wet.

Water conservation is simple and based on common sense. With some careful planning, a bit of maintenance and the choice of the correct equipment for the job your garden watering will become more efficient and less time consuming. Take a few minutes to rethink your own watering habits: correct and improve where needed. You'll be happier, your plants will do better and your conscience will be clear knowing that you have wasted not.

Ed Lindemann is PHS horticulturist and Philadelphia Flower Show designer.



HOSES AND OTHER IMPLEMENTS OF GARDEN TORTURE

 by Sally McCabe

The garden's going to be a great success this year. The melting snow left the soil with just the right amount of moisture to germinate the early-planted seeds. Spring showers were gentle, perfect for watering the small seedlings without washing them away. Summer rain has come right on schedule, just hard enough to get water down to the roots and promote that mouth-watering green foliage that only shows up in catalogs. And of course it will fall only on the garden beds, without making mud-slides out of the yard.

And someday pigs will have wings and fly to the moon.

In the meantime, we have to learn to work with the hand that's dealt us, and with the tools at hand. And when it comes to watering the garden, there are enough tools available to keep you shopping for years. What you need to do, however, is to figure out exactly what you need while still spending less than you would to hire a gardener.

Let's start with the bare basics. Here are questions you can ask before you go out to spend money.

What is your source of water? Is it metered (do you have to pay for it)? How far away is it? Watering from a running stream is going to call for a different set of rules than having a water bib right in the middle of the garden. And city gardeners may need to deal with the additional complications of a fire hydrant and the expense of a permit.

What can you do to cut down on the need for watering? There are lots of easy cultural practices that conserve water. Mulching is a major water-saver, since it keeps the soil from drying out too fast. Planting in wide rows allows plants to shade each other, maintaining an even moisture level in soil and surrounding air. Xeriscaping, a practice that's gaining in popularity, makes use of drought-resistant and native plants that don't need to be watered. Observing weather patterns will tell you when

and when not to water.

What is the lay of the land? How big is your garden? Is it on a slope? At the bottom of a slope? Is it round? Square? Are you planting in scattered sites? Are beds raised? Shape and location will have a big influence on what type of tools you'll need to get the job done.

What is the soil like? Sandy soil needs to be watered more often than clay soil. And all soils can benefit from adding organic matter, which helps to loosen the texture and retain moisture.

The simplest type of garden to water is a small densely-planted plot right next to the house and the water bib or rain barrel. Watering with a hand-held hose (or watering can or milk jug) every few days is all that's needed. Since it's so close to the house it's easy to gauge when plants are ready for a drink. Even if the garden's not as close, as long as it's small you can still rely on hand-watering. Not all gardens are as convenient as all that, though. Most require moving water over a distance, and that's where hoses become necessary.

There are many different kinds of hoses to choose from, each having their own strong points. First decide the degree of hazardous duty you'll want yours to perform, then balance that against the price you're willing to pay for it. For example, the one I use has to attach to a fire hydrant, cross a moderately busy street, go through two fences, run about 300 feet, not tangle too badly, and be light enough to lay out and take up each time it's used. Oh, and we're on a tight budget.

Running across the street was the worst thing we wanted it to do, so for that purpose we bought a more expensive, heavier-walled reinforced-nylon hose, long enough so that neither of the **ends** would be run over by cars. For the rest of the system we bought as many of the \$2 supermarket spring specials as we could lay our hands on. We reasoned that it was still cheaper in

illustration by Gina Rondinelli

the long run to replace the less durable hose with more of the same as it wore out or was damaged.

Oddly enough for this day and age, comparative price is usually an indication of hose quality (unless you can pick things up at wholesale or going-out-business prices). The \$2 K-Mart specials are good for one season or less if you don't abuse them; they can't tolerate freezing temperatures (they crack), they don't like blazing sun (they soften up and kink), and they're easily damaged by hoes, shovels, and playful dogs. The advantages are that they're light to carry, available anywhere, and, of course, they're dirt cheap.

Top-of-the-line rubber hose can run up to \$30 for a 25-foot length, but it's virtually indestructible and will probably last you

the life of your garden — some even come with a lifetime guarantee.

Anything in the in-between price range should be evaluated on durability, flexibility, weight, cost, availability, and whether the manufacturer has remembered to attach rubber washers for the fittings. Washers are absolutely necessary to keep joints from leaking. Pick up a few extra if they're available, since they're easy to lose. Some even come with built-in screen for filtering large lumps out of the water before they can get into the hose and clog nozzles or sprinklers.

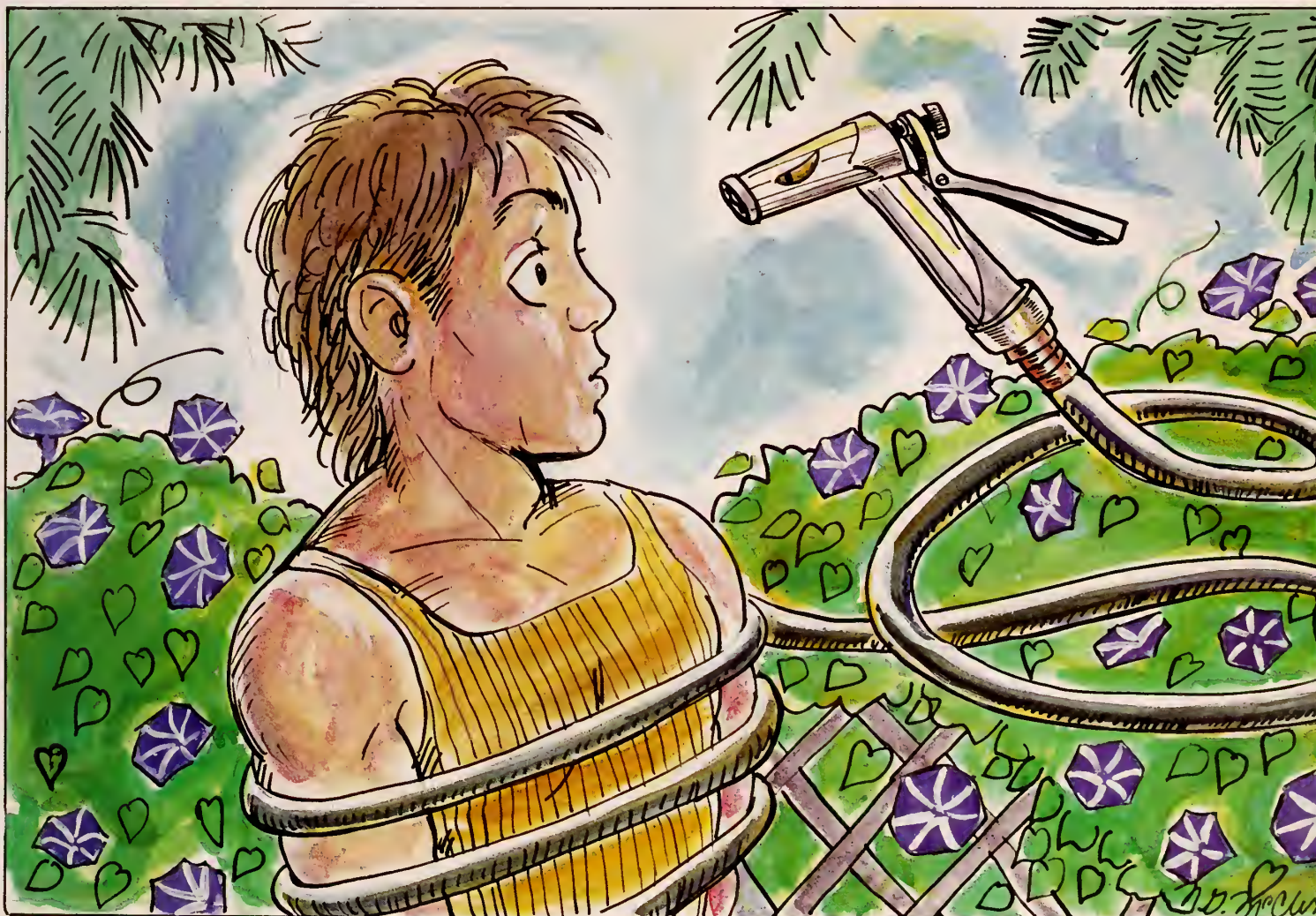
One other feature to consider when buying a hose is the durability of the fittings. Most hoses have either brass or plastic fittings, since neither will rust. Plastic is perfectly acceptable unless it's going

to be used constantly (screwed on and off several times every day) or run over by cars (cracks them at the seams — the fittings, not the cars). Stamped brass fittings (usually easy to identify, since they're very shiny) are soft enough to mark with your teeth, so they get out of round at the drop of a hat. Once that happens they won't screw together any longer, or will leak badly. Higher quality brass fittings look more durable, and have less of a shine.

Hoses come in varying sizes, with 1/2" being the most common; 3/4", 5/8", and 1/4" are also available. This measurement refers to the **inside diameter**; fittings are usually compatible no matter what the inside diameter is. If you're worried about it, hold the hoses together and make sure it

continued

illustration by Nancy McInerney



HOSES AND OTHER IMPLEMENTS OF GARDEN TORTURE

fittings match. Inside diameter is very important to know when you're buying patch kits, though, and that brings us to the next subject.

hose repair

No matter how careful you think you are, eventually you're going to have to deal with broken hoses. The most common causes are lawnmowers and rototillers; occasionally joints will develop leaks after abuse by tools or being run over by cars. There are several schools of thought.

Hose Leaks — Mend **small punctures** by wrapping black electrician's tape around the hose a couple of times. This will hold for a while, but should be abandoned if you find yourself patching the patches every other time you use the hose. Other folks take advantage of small leaks by positioning them near a shrub or tree that could benefit from a little drip irrigation. Mend **larger leaks** using repair kits readily available from most hose displays. These involve installing a replacement joint into the ends formed by cutting off the damaged spot. The kits cost anywhere from 79 cents up, and come with complete instructions, using simple hand tools. It's **very** important that you know the inside diameter of the hose, so you'll be sure what size repair kit to get. If you're uncertain about the size, take the piece you cut off with you and measure it against the kit.

nozzles and hose heads

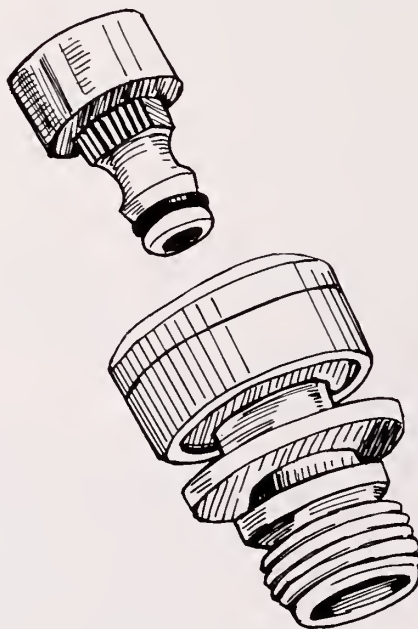
It seems billions of accessories are available to attach to the end of the hose. Some of them work even better than the prototype, the thumb I'm sure you've used at some point in your life to vary the force of the water flow.

Nozzles work in much the same fashion. Water comes out of the hose through a certain diameter opening with a certain amount of force. If the size of the opening decreases, the force increases, making the jet of water spray farther. Spray nozzles take advantage of this principle, and also manipulate the shape of the spray by varying the shape and direction of the openings.

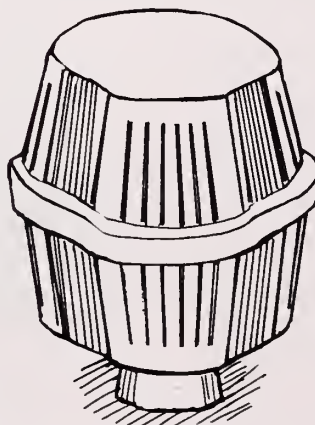
The most commonly used is the gun type, or "**pistol grip**," named for the handle that makes it easy to use. These can be



A brand of fan sprayer. They come in plastic or metal, with or without a shut-off valve



Quick-coupling attachments allow for easy on-off of attachment and fast hose connections.



illustrations by Nancy McClellan

"Bubbler" or "Ball" attachment cuts down on pressure, soaking plants without eroding soil

plastic, brass, or aluminum, according to taste. Pressure on the handle changes the pressure and shape of the spray. Usually these also have a knob on the handle for adjusting pressure when the grip is put in a locked position. This "lock" is almost always the first thing to break on a gun-type sprayer, so look for a sturdy one. The grip is spring-loaded to serve as an automatic shut-off.

Breakers do exactly that — they break down the force of the water by enlarging the amount of space for water to come out. **Fan sprayers** do the same thing. Both of these are tailored to give a gentle sprinkling, especially for newly seeded areas and delicate plants. **Bubblers** (balls) use slots instead of holes to give a gentle water flow for deep soaking without eroding the soil. These are great for watering container plants since they don't leave you with a sink hole in the middle of your pot.

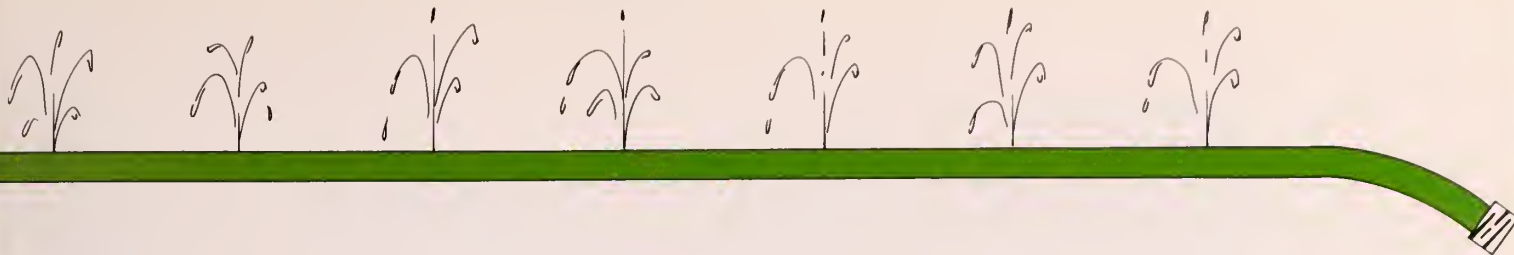
No matter what kind of attachment you use, it's always a good idea to have a shut-off valve somewhere. It saves a lot of steps, since you can turn off the water without walking all the way back to the source. "Y" connections are also nice, since they double the usefulness of a hose. Get one with a double shut-off so you can use one or the other side when you don't need both.

sprinklers

There are four basic kinds of sprinklers: stationary, rotary, impulse and oscillating. Stationary, impulse and rotary types can have three kinds of mounts — spikes to stick into the ground, sleds to be pulled along on, and risers to elevate them above shrubs or obstacles; oscillators sit on sleds.

Stationary systems are just that — they sit still and spray water onto a set spot. They can be as simple as a length of hose with holes in it that sprays up, and is used for long areas. **Rotary** systems spin around and around, spraying water in what's usually a round area. Some can also be adjusted to do one-quarter, half, or three-quarter circles. And now there's even a programmable model. By altering the shape of the track the sprayer mechanism spins around on, the shape of the water pattern can be changed to cover almost any shape area, all without watering the driveway.

Impulse sprayers are very similar to ro-



tary, since both fit the same situation. The difference is that the actual sprayer doesn't spin. Instead, the jet of water is aimed upward, and a deflecting arm spins around aiming the water outward in a circular pattern.

Oscillating sprinklers are used for a square or rectangular spaces. They're made from a horizontal hose or tube with a line of openings to let the water spray out. The tube turns, aiming the holes first to one side, then to the other. How far the tube turns regulates how large an area is covered. All but the most basic models can be adjusted for distance; the new programmable types have a flexible tube that can be bent to change the shape of the spray to accommodate a variety of shapes. Oscillators generally have a sled base so they can be moved around easily. The only problem I've encountered with them is that most seem to pause at the end of a stroke, so that the outside edges of the pattern get soggy while it's working up the energy for the return trip.

drip, trickle and soak

Drip (or trickle) systems are gaining more and more popularity with home gardeners, so all the manufacturers and catalogs are jumping on the bandwagon. Most are easy to install, maintenance-free, time-saving, and money-saving, since they can cut down water consumption 30-50%.

Most basic is the **soaker** hose, a porous hose that oozes water over its whole surface. Snake it through the garden and/or around shrubs and trees, and turn it on when you need it. It has no joints to put together, and no holes to punch — and of course you have no choice in where along its length the water comes out.

Drip or trickle systems only leak in certain set places, instead of along the whole surface. The simplest are plastic strips sewn into tubes that leak along the seam. Others are plastic tubes with small holes punched around the surface. These work fine for smaller areas, but tend to lose pressure over long distances because there are so many holes. For that purpose a more complicated system comes into use — solid-surface tubes that only leak where you want them to. You accomplish this by poking your own holes and inserting emit-

ters that leak a specific amount of water — small or large according to the size of the emitter.

For the connoisseur, the Burpee catalog offers a drip system that includes a control unit (filters water, regulates pressure, prevents backflow, and dispenses fertilizer), sprinkler, pipe tubing, emitters, couplings, pegs, shut-off valve, and hose connector with water stop. It can be used with a battery-operated water computer that remembers to turn your irrigation on at a set time every day; you can also get a moisture meter to override the computer if it should rain that day.

other niceties

One of the most exciting and useful innovations in recent years is the **quick connector**, pioneered by Gardena.* These come in either plastic or brass, and permanently convert screw couplings for instant on/off use. Now instead of screwing together every joint (hose-to-hose or attachment-to-hose) you permanently attach the slip-on connectors to the faucet, hose joints, end of hose, and accessories, anywhere you'd like a fast way to on/off. Just make sure you buy the right sex to match the fitting you're replacing. In case your mother never explained, connect a female fitting to the faucet, a male to the hose that attaches to the faucet, a female to the business end of the hose, and a male to any accessories. (See diagram.)

For people who seem to be permanently on the go, a **timer** can be invaluable for watering when you can't be there. Although it may be a while before they completely replace your neighbor (who can also feed the cat), they have the added benefit of saving water by remembering to turn it off when done.

Timers come in two flavors. The first kind works electronically, turning the water on and off a set time every day. The problem with these is that they have no idea whether it's raining or not.

The second type of timer would more accurately be called a "volumer." They don't turn water on and off; they are only

trained to shut it off, doing this automatically when a certain amount of water has passed through them. Read the label to make sure that the timer works the same regardless of water pressure.

Timers can be attached anywhere along the water line, either right at the faucet or at the end of the hose. Many sprinklers have their own built-in timers.

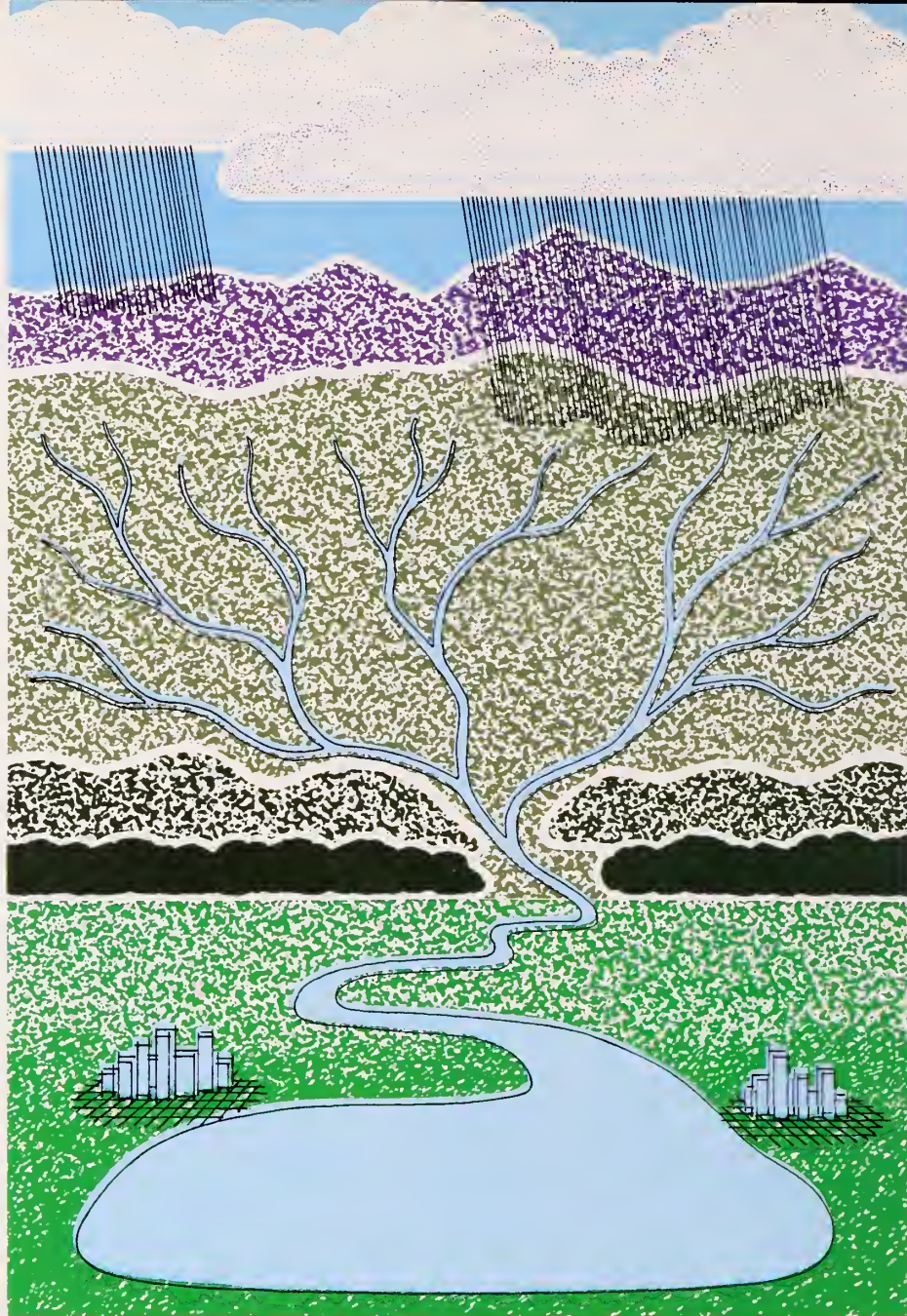
Hose reels, hose reel carts, and hose wall hangers help to add a little order to life. Rolling it up when you're finished can add years to the life of your hose, since it prevents kinking and breaking, and drains water from the system; reel carts are also a great relief for your back. These hose controls are necessities, not niceties, since an out-of-control hose can wreak havoc. Whole gardens are laid waste and hundreds of gardeners are rumored to vanish each year as marauding hoses wrap themselves around ankles and drag hapless victims down into holes in the ground.

Last but not least are hose guides (aka "shin basher") pounded into the ground at the corners of beds or near delicate plantings to keep hoses where they belong, preserving those beautiful plants that have taken you weeks or even months to prepare. Ornate, decorative versions can be ordered through garden supply catalogs, and simpler kinds can be fabricated from lengths of wooden stakes or piping.

For the best advice about watering in your area, talk to other gardeners — your neighbors, your friends — they're all good resources. Adapt their suggestions to your own situations. Most garden and seed catalogs have special sections for watering equipment, from watering cans to drip systems to computerized water meters. Garden centers are also a good source, since most offer free advice with their merchandise. Remember, though, that these tools were intended to make life easier for gardeners. They're not there to run your life, so relax and when all else fails, pray for rain.

Sally McCabe is Citywide Greening Administrator with Philadelphia Green, PHS's Community Garden Program. She has been watering gardens for the last 25 years, ever since her mother gave her the option of working in the garden or doing dishes.

*Gardena Inc.
6031 Culligan Way
Minnetonka, MN 55345



WATERSHED ASSOCIATIONS WORK FOR BALANCED COMMUNITIES:

Becoming Part of the Solution

 **by Denise Naidu Snyder**

I never met Clayton Hoff, but I wish I had. Mr. Hoff, founder of the Brandywine Valley Association in 1945, died last year at the age of 94. He conceived the idea of a watershed association as a means of protecting and preserving natural resources. It is a brilliant concept.

Like many good ideas, it is essentially a simple one. He held that a valley or watershed is a basic ecological unit and that the

people living in that valley are the ones most likely to care for and about it.

There is something basic to human nature to look to a body of water as central to local life. Water both sustains and renews us. It takes us back to the beginnings of life where we swam like tadpoles in the womb, recreating the evolution of our species.

Many rivers and even tributaries of greater rivers now have a group of local

folks who took up Clayton Hoff's notion. Since it is a Pennsylvania idea, there are perhaps more watershed associations there than in other states, but my own New Jersey has a dozen or so and the concept has spread to other countries.

Watershed associations are always very positive organizations. They do not primarily lobby **against** things, but rather work **for** a healthy, balanced community. This is probably one of the reasons for their success. Everyone is bombarded with bad news about the environment. There doesn't seem to be much the individual can do. But watershed associations view Man as part of the natural order of things, not above it, and this gives a whole new perspective to the work of changing peoples' minds, hearts and habits.

water quality and land use linked

Every watershed has its special focus. Ours, the South Branch Watershed Association, takes the position that since water quality is a matter of land use, and since land-use decisions are made at the municipal level in New Jersey, that is where we concentrate our limited human and financial resources. We look out for the long narrow valley of the South Branch of the Raritan River, which spans 276 square miles and 42 miles of main riverbed. Twenty-six municipalities and parts of three counties lie entirely or partly within its confines.

It is a highly strategic watershed. The South Branch valley with its two great reservoirs is one of New Jersey's great "water farm" valleys supplying potable water to the state's commercial-industrial heart. Environmentalists are often accused of ignoring economics, but if protecting the valley's resources isn't sound fiscal planning, what is?

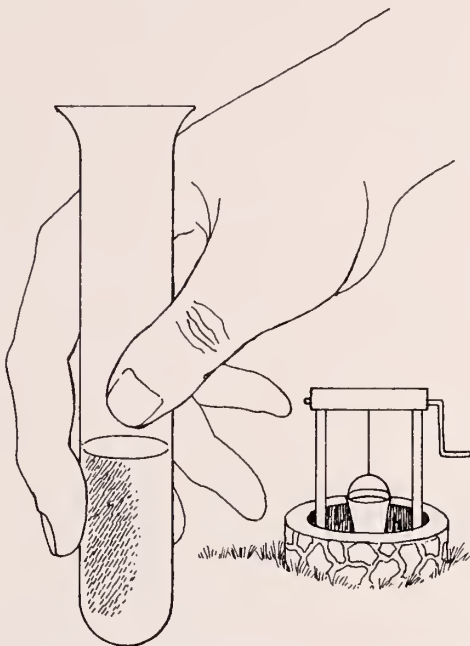
No fixed "duties" govern a watershed association but most share three basic tenets. The first is that abundant natural resources — the land and its surface and ground waters — are the basis of all civilizations. No nation has ever broken this law and survived.

Second, all land is **not** created equal. I like to compare the land to children. You can buy a kid a violin and beggar yourself on music lessons, and **never** make a Menuhin out of him. Similarly, land has its suitabilities because of topography, geology, soils and hydrology.

The final "law" is: water runs downhill. If you mess up the ridges, you'll have poor water quality in the valley. Sounds simple, doesn't it? I can't count the number of

public meetings I have attended where this fundamental act of gravity is ignored.

There is no talking of water quality without discussing land use. They go together. Today, we can look around the world we are creating and see a kind of arrogance of technology, an attempt to impose our col-



The SOUTH BRANCH WATERSHED ASSOCIATION, R.D. 1, Rt. 31, Lebanon, New Jersey, 08833-9760. Phone: 782-5513. "SWBA is a non-profit citizens' association formed in 1959 for the purposes of protecting, restoring and conserving the natural resources of the South Branch Watershed; conducting scientific investigations and research to aid the accomplishment of these aims, and to do all things suitable and appropriate to protect and improve the communities of the area within the watershed."

Quoted from the Articles of Incorporation.

To Find Your Watershed Association

For the name of the watershed association nearest you, contact the Mid-Atlantic Council of Watershed Associations, 2955 Edge Hill Road, Huntingdon Valley, PA 19006; Bruce McNaught, President.

lective will on a protesting land... **everything** can be engineered!

We may marvel at the works of early Man — the great irrigation systems of the Toltecs stretching to the horizon, now nothing but dusty furrows. The Mogul's lavish gardens, even with today's technology, were stupendous undertakings. But in the end, in the effort to claim water where it was scarce failed. Nature won. She always does.

Given our own poor history of maintaining what took so much labor and capital to build, can we be sanguine about our tinkering with the great hydrologic cycle that sustains all life. California's irrigated farmlands are salting up. The over-pumping of the great Ogallala Aquifer that covers the best part of five western states far exceeds the rainfall that replenished its vast reserves. Florida's limestone sinkholes reveal the over-pumping of that state's ground water.

Like children, the land is never absolutely owned by any of us. We use (or abuse) it so long as we have a piece of paper, a deed or lease, that says we may. Like children, land can be disappointing. Test drills for water, percolation tests for sewage disposal, may not reveal a sound basis for constructing a house.

Land speculators feel that society should somehow guarantee a hefty profit. If Joe Dokes buys stocks or bonds and the market collapses, well... too bad for Joe. If Moe Blokes buys land and then finds it will not "perc" or the stormwater management is too expensive to make a profit, well... Moe sues the planning board for the right to build anyway.

watershed associations must instill new land philosophy

What watershed associations try to do is instill a whole new land philosophy. Because environmental protection work is so staggeringly difficult, involving as it does the earth sciences, chemistry, and biology, along with economics and sociology, each watershed group tackles the task in a different way. The South Branch Watershed Association has found that "preaching" alone does not accomplish much.

This Association has become a highly technical organization. As far as I know, the SBWA has the only community-wide program designed to educate the public on groundwater protection through a convenient, low-cost well testing program. This innovative program also provides the only on-going collection of groundwater quality data for the area since our well test reports

continued

are generated by computer.

Information on basic resources is essential if we are to live within the carrying capacity of the valley. While the population continues to grow, the individual demand for water has risen dramatically. Each new home is calculated for 80-100 gallons of water per person per day.

The cost of maintaining an adequate supply of good quality water is very high. Most of us are not paying our fair share of the cost. Nor are we prepared, as a society, for the kinds of land-use controls that are almost inevitable if we are to preserve water resources.

It is a matter of mathematics. There are more and more of us, enjoying higher and higher standards of living, completely divorced from the supply and demand that causes simpler civilizations to husband their resources.

Hygienic standards have risen dramatically over the past generation. We shower and bathe more, and do more laundry. As a girl growing up in England, a full bath was a weekly ritual, not a twice daily affair that my sons take as minimal to their public acceptability. Their consumption of shampoos (ever read the ingredient labels?) and other cosmetic aids adds an incredible range of chemicals, along with my detergents, bleach and cleansers, to the subsurface water supply. Like most watershed residents, we also live on a septic system. Good for recharging the aquifers, not so good for preserving drinking-quality water.

failing septic systems

Statistically, nationwide, failing septic systems have a greater impact on the quality of ground water than landfills. In the South Branch valley, some 85 per cent of the population relies on wells and nearly the same number of septic systems. Significant numbers of people rely on very vulnerable shallow wells, some no more than a hand-dug pit with a slate cover. It is not unusual for such a well to have been in use since Colonial days. We advise them to save their pennies. They will need to upgrade their systems as the area develops and the population density increases.

sewage

Before castigating the government for not providing the funding for public utilities, remember that most sewage treatment plants must discharge their treated effluent to a body of water. All five treatment plants on our section of the Raritan have had upsets over the past couple of years. Two

plants are currently undergoing the necessary studies for expansion of treatment capacity. It is by no means certain that the river has sufficient dilution capacity for additional discharges which, in any event, would only take care of a fraction of the ever-rising demand.

One of our communities has such gross groundwater contamination that it has been "red-lined" and public water will be brought in. This has not put the smallest crimp in rate of growth. In fact, the creation of a public water supply to take care of those folks with contaminated wells only lures more development since it has freed the area from the water constraints imposed by private wells.

2X daily



The life of a septic system is approximately 20 years – if designed, built, located and maintained properly. It is logical to assume that there will never be enough public monies to sewer all the subdivisions being scattered over our farmland. One of our communities has such gross groundwater contamination that it has been "red-lined" and public water will be brought in. This has not put the smallest crimp in rate of growth. In fact, the creation of a public water supply to take care of those folks with contaminated wells only lures more development since it has freed the area from the water constraints imposed by private wells.

While the majority of the wells we test are

in good shape, if you are one of the unlucky few, it can mean major headaches. Fortunately, most problems are rather minor and can be remedied easily. It does, however, point up the need to maintain wells and septic systems. While there is no "user fee" associated with them, they do need care. They are not absolutely free of cost. We view providing advice and assistance to people with well and septic system problems as "one-on-one" environmental education.

At the present rate of growth, a time will may come when the surface waters of the South Branch and its two great Reservoirs, Spruce Run and Round Valley, are needed within the valley. Will we see "water wars?" Out West, we've seen interstate wrangling for water rights to the Colorado River.

But it is not the failure to understand environmental science that will confound us, despite the staggering loss of tropical rain forest, changes in the ionosphere, or even acid rain deposition. It is our failure to see ourselves as the problem; failure as a civilization to work **with** and not against, the Earth's great machine. But convincing people to do right by the environment is what watershed associations do best. Local people with practical knowledge make the problems real — and solvable. For watershed associations combine a total ecological approach with passionate commitment to preserving the beauty and wholeness of the earth.

For each of us in our own valley there is opportunity for change. Walk down to your creek or river: note how the land cradles its course. Know that you are a part of that watery universe. Set your mind free to travel with the flowing water out to the oceans where the great whales sing. That other world of sticklebacks, caddisfly, turtles, mayflies, and an endless succession of simple organisms, is our world also.

Show your friends. Tell your children. Join or start a watershed association.

Denise Naidu Snyder is the South Branch Watershed Association's executive director and only full-time employee. She currently heads a part-time staff of five, including the technical people required to assist municipalities and residents with a broad range of land-use questions. The Association runs its own water analysis laboratory, under the expert direction of Dr. W. W. Umbreit, professor emeritus, Rutgers University, and conducts both well and surface water testing. Last year, the Association tested over 2,000 local wells as part of their Community Well Testing program conducted in 19 watershed municipalities.

Water features in the small garden

 by **Ralph and Liz Schumacher**

Perhaps even more than large estates, small private gardens benefit greatly from the addition of water. A well landscaped pool can provide a special center of interest, sound, motion, summer cooling, a habitat for different plants or fish, and, we hope, the romance of a unique setting.

Water can be used in many ways in the
continued

photo by Jolande Goldberg

A modern terracotta sculpture fountain offers color contrast, motion and sound.

garden from streams and ponds to waterfalls, fountains or small tub gardens. Since no small garden can get all these effects from water you must pick what is most important to you. One of the easiest, least expensive ways to add water to your garden is to install a fiberglass pool. Pools are relatively low maintenance and may be the only form of gardening where doing less makes you more successful. Care, however, must be taken with the design and installation to get the desired formal or natural effect.

Before selecting a pool give considerable thought to exactly what you hope to achieve. Much will depend on other components already in place in the garden. Each water feature must be appropriate for the individual garden, person, time and site.

selecting style and scale

A formal pool is easiest to plan because it does not pretend to be anything but manmade. You will want to place it where it will add the most to your pleasure in your garden. The strong lines of a horizontal, geometric shape are most effectively set off by a vertical line of a wall, specimen plant, ornament, or fountain that stops your eye as well as by the softening of plants creeping over the edges. Edging is easier with regularly shaped bricks, tiles, or stones in a scale corresponding to the size of the pool.

An informal naturalistic pool looks unplanned but requires more effort to design and plant. The location must follow the rules of nature: find a spot where water normally collects. The shape should be curved and irregular to mimic a natural pool. The edging should also be irregular to be convincing.

The scale of a water feature should more than likely be larger than you originally think. In a formal pool the coping will cover part of the water surface and in a natural pool the edges become covered with plants. If a fountain is planned, the pool should be at least twice as wide as the height of the fountain spray to minimize water loss from splashing and should be even larger if the pool is located in a windy area. Plan as large a pool as space, grade and finances allow.

Decide at the start whether you want fish and water plants. Blooming water lilies require at least five hours of sun. Consider



The simplest way to add water in your garden is with a tub garden or small recirculating fountain.

mature size as well as the initial size of plants when placing them. You'll enjoy the pool more if it is accessible by a pleasant path or readily visible from an indoor or outdoor sitting area. The most successful pools are easily seen from indoors. You may also want to light the water so you can enjoy the pool at night. A site near the house is also close to an existing electrical source, which is another advantage.

materials you'll need

Fiberglass is an excellent material for a pool. It is considerably less expensive than concrete, more durable than either concrete or plastic and is easy to install. Fiberglass pools are available in more than 35 shapes and sizes from 2 feet in diameter up to 13.5 feet long. Shapes include round, rectangular, kidney and a variety of free-form shapes that defy description. The

maximum available depth from most suppliers is 18 inches, as zoning laws usually require pools deeper than 2 feet to be fenced as a safety precaution. The deeper the pool the better it is for fish. Water temperatures change more gradually and complete freezing is less likely. Built-in shelves at various depths allow placement of potted aquatic plants, which provide a third dimension. Pools come in deep blue, beige, brown, and aqua colors; a dark color looks cleaner, reflects light and enhances plants better than lighter colors.

If you want water movement, a pump will recirculate the water in the pool so that there is no need for a constant water source. Just be sure the pool is within reach of a hose. The size of the pump should be based on how high you want to pump the water and how heavy the column of water will be. You should be able to circulate the



A fiberglass fish pool shortly after installation in 1974 shows what still appears to be sparse background planting with yews, cotoneaster, and rhododendron. The pool is built into the hillside with natural rocks covering the front.



The same pool 13 years later shows maturing plantings almost dwarfing the pool. A larger pool would have been better.

entire volume of pool water through a filter once every two hours. A small pump can pump 100 gallons of water an hour one foot high or 50 gallons of water three feet high. The specifications for each pump are usually printed on the pump box. There are 7.5 gallons of water to a cubic foot so you can calculate how many gallons of water your pool holds — or better yet, ask the pool supplier. It is a good idea to buy a slightly more powerful pump than you need because if you forget to clean the filter, the water flow slows down appreciably, which won't happen as fast with a stronger pump. If the water flow is too strong, use a restrictor clamp on the plastic tubing that connects the pump to the source of the water motion. If you do use a pump, you must install a ground fault interrupter in compliance with the current electrical code. An important safety feature, a ground fault

interrupter immediately shuts off the current if there is a short circuit.

marking the site

Once you've selected the site, the pump and the pool, mark an area following the perimeter of the pool so you'll know where to dig. The excavated area should be at least a foot wider than the pool so you can move the pool around to level it, and slightly deeper than the pool depth. Remove any sharp stones, Indian arrowheads, etc. from the bottom of the hole and line the hole with at least one inch of sand or newspapers. Adjust the sand or newspapers to make a level footing for the pool. Set the pool in the hole and make sure it is level either by adding a small amount of water to the pool to see if it uniformly covers the bottom or use a carpenter's level front to back and side to side. The top of the pool should be

just above ground level to prevent ground water and dirt from washing into the pool. Once it is level and the right height, replace the soil as you fill the pool to equalize the pressure on the sides of the pool and to help keep it in the right position.

Before placing the edging, position any pump or underwater light wires so that they will be concealed by whatever you are using to cover the edge of the pool. You want the pump to be as inconspicuous as possible so place it where you see it the least. A pump will recirculate the water for a fountain, bubbler or waterfall and will also pull water through a filter to trap debris and maintain the water quality. For the most efficient filtering, place the pump as far as possible from the source of the water motion. Also remember that water lilies like quiet water so keep the water motion away from them.

Edging can be permanent as with concrete coping or bricks cemented into place or more flexible with stones simply placed to cover the fiberglass edge. Don't forget to keep the edging in scale with the size of the pool and keep the long axis of each stone running in the same direction.

Pools rarely look good without surrounding plants to soften the edges. Use some repetition in the planting to create a continuous form. Don't use this area to show off every exotic plant in your collection. Keep plantings low around a small pool and be sure to allow for the plant's ultimate size. It is better to create a landscape design with plants around the perimeter of the pool or bog plants in pots than with floating or rapidly spreading water plants, which won't stay where you put them. A rich green background shows off water motion more effectively than a light background and gives substance to the design. Choose the color of your water plants to compliment the surroundings and be sure that at least 1/3 of the water surface is kept clear of plants so you can enjoy the water.

fountains

Many types of fountains can be attractive in the pool. Fountain heads create a variety of water patterns and sound, from a gentle bubbling to a dramatic splashing. Piped statuary in concrete, lead or bronze includes small animals, lilies or other flowers, classical figures and abstract forms. Select these carefully to help create the mood you want. The setting, the plants and

continued



A built-in, underwater light accentuates the water droplets of a small pool fountain in a shady area.

the fountain should all compliment each other.

A fiberglass pool is a low maintenance addition to the garden but some regular care is needed. Remove leaves that fall into the pool because they can decay and alter the natural balance needed by any fish. Once a year the pool should be cleaned thoroughly, washing out the bottom of the pool but not removing the algae on the sides of the pool. Clean pump filters weekly or whenever the water flow diminishes. The development and details of a naturally balanced pool are discussed in Joan Nangle's article on page 21. In a purely decorative pool without plants or fish where appearance is the only concern, chemicals such as Physan may be used to greatly slow the emergence of algae. If fish are to be over-wintered in a fiberglass pool a small heater may be needed to keep a hole in the ice for several of the coldest weeks of the year.

Having told you all this, I'd like to say that we put our fiberglass pool in by ourselves, with the exception of the electrical outlet, 12 years ago long before we knew any of this information. Maybe we were just lucky but it's turned out to be a great addition to the garden and a lot of fun. If we could do it then, now that you've read this article, just think what you can do!

Some Local Sources for Garden Water Features

Aquatic Gardens
Rt. 537, Monmouth Rd.
Jobstown, NJ 08041
609-723-4224

Dutchman Fountains, Inc.
Mount Road
Lenni, PA 19052
215-459-4100

Garden Accents
J. Franklin Styer Nursery
914 Baltimore Pike (Rt. 1)
Concordville, PA 19331
215-459-2400

Elizabeth Schumacher graduated from the Arboretum of the Barnes Foundation in 1979 and started Garden Accents, a garden ornament business located at J. Franklin Styer Nursery the same year. She is a frequent lecturer on garden ornaments and the use of water in the garden. She and her husband Ralph, professor of medicine at the University of Pennsylvania, have developed an award winning garden with a fish pool and a fountain in Gulph Mills, Pennsylvania.




Flagstone edging, several good sized rocks, and well proportioned evergreens surround a lead child seated on a snail, which serves as a fountain head in this semiformal pool.



To establish water that is clear enough to view fish but not the mechanics create an environmentally natural balance in your pond. The author explains how to do that.

Clear Water in the Ornamental Garden Pond

 by Joan Nangle

When gardeners have mastered the ordinary, they begin to look for the extraordinary to challenge their gardening skills. This challenge often takes the form of a water feature, which adds sparkle and movement to a garden in a way that plants alone can never match.

Water features can be incorporated into a garden as a fountain or a formal pool in a geometric shape similar to those at Longwood Gardens. Or they can be man-made imitations of those tranquil places we daydream about: sunlit gems of sparkling water and darting fish, tucked neatly into a perennial garden or a shrub border.

thick green water

Preformed fiberglass pools and PVC liners have made pond installation so simple and affordable that many gardeners who wouldn't have considered owning a garden pond just a few years ago are now giving them a second look. Once the pool

or pond is filled with water, however, water gardening's real challenge begins.

Thick green water isn't what we see in the water garden of our imagination, yet that's exactly what we have shortly after we fill the pool. Fountains and formal garden pools that don't include fish and water lilies can be kept clear with chemicals and mechanical filtration. But if your water garden is meant to convince visitors that you were clever enough to buy a home with a "natural" pond in just the right place, don't destroy the illusion with too much clarity. Flower pots, pumps, and filters tell the viewer that what they're seeing is artificial. A little murkiness adds to the mystery.

Water that is clear enough to view fish but not the mechanics is best achieved by creating a natural balance. An environmentally balanced pond is one in which the water is the color of weak tea. On its sides is a velvety coating of algae and bacteria. The pool will stay clear without adding

chemicals because bacteria convert organic wastes (produced by fish) to non-toxic nutrient (used by water lilies).

To understand how this works, consider some basic principles of water gardening. If the object of having a water garden is to grow water lilies (and if it isn't initially, it will be when you appreciate the beauty and versatility of these captivating plants), then sunlight is essential.

But unicellular algae, which causes cloudy green water, also thrive in sunlight. Like all plants, algae also need water, carbon dioxide and nutrients. Water lilies and other plants with leaves that float on the water's surface help control algae by shading the water below. One medium sized water lily (6-12 sq. ft. depending on growing condition, etc.) will provide enough shade for a 4' x 5' garden pond.

Fish are essential in a water garden because they control mosquitoes. They provide other valuable services, such as

eating water lily aphids and controlling the snail population. Believe it or not, they will also learn to come when you call and to take food from your hand. Eight to ten inches of fish (excluding tails) per square yard of water surface will keep your pond fairly insect free without adding significantly to the organic waste. Fish grow and reproduce, so it's important not to overstock initially.

the good weed

Submerged plants, sometimes referred to as oxygenating plants, are actually pond "weeds." Their rapid growth makes them valuable in establishing an environmental balance. They compete with the algae for nutrients and carbon dioxide and provide spawning media for fish. Their brush-like foliage also traps floating debris. Two or three bunches of submerged plants are required for each square yard of water surface.

Anacharis (Elodea canadensis) and *Myriophyllum* species are easiest to obtain as cuttings and root quickly if kept away from fish for a few weeks. Several bunches of submerged plants, six cuttings per bunch, can be planted in a single pot, and placed in a shallow tub in a sunny location until they are well rooted.

Always use heavy topsoil when planting aquatic plants, never a soil mix containing perlite, peatmoss or vermiculite. These soil lighteners float to the pond's surface. All soil surfaces should be covered with stones, not sand, and if you have Koi in your pond, the stones should be at least one inch in diameter. Don't underestimate the ability of these fish to rearrange things to suit their idea of housekeeping.

Water hyacinths do triple duty as water clarifiers by shading the water, trapping debris and gobbling up nutrients as they reproduce at lightning speed. They also produce lovely flowers, and, contrary to popular belief, are not illegal to grow in Pennsylvania.

Scavengers serve as the janitors of the pond by removing leftover fish food, wastes and other nutrients from the bottom of the pond. Tadpoles are preferred because as frogs, only the number that can be supported by the pond will remain, while snails continue to reproduce and consider water lily and water hyacinth leaves a delicacy. You will need two scavengers for each square yard of water surface.

filters

Although it's possible to create a balanced pond without the use of filtration,



Fish are essential to the ecological balance of the pond, and they become interesting pets.

filters play an important role. There are many types of filters available, and they fall into two categories; mechanical and biological. Both are powered by a submersible pump, which forces the water through the filter media; foam pads or sand in the mechanical filter, stones in the biological filter.

Mechanical filters are submerged in the pond and require a pump that is capable of recycling the entire volume of water in two hours. Their major drawback is that they

Algae

Algae are simple plants which lack true roots, leaves, or flowers. They may occur as single cells, colonies, filaments, or advanced forms (muskgrasses or stone-worts), growing to a height of 2 to 3 feet and resembling rooted plants. Some are microscopic, undifferentiated by the unaided eye, except perhaps for the green color of a pond caused by millions of algal cells. Others are macroscopic, their form visible to the naked eye. Algae may occur as free-floating surface scums, dense surface or bottom tangled mats, attached on rooted plants or submerged objects, or motile individual forms dispersed throughout the water. Since these are primitive, nonflowering plants, few homeowners would intentionally introduce them into garden ponds. However, certain algal types require no conscious introduction, as birds frequently do that job. Standing water, out-of-doors, will always contain algae and small garden ponds with high nutrient inputs may become overgrown with algae.

With permission from *The Virginia Gardener Newsletter*. Department of Horticulture, Extension Division, Virginia Polytechnic Institute and State University. "Common Water Plants of Virginia" by Diana Weigmann and Louise Helfrich, November 1987.

require frequent cleaning.

Biological filters provide a surface for the bacteria that convert organic wastes to nontoxic byproducts (nitrifying bacteria). These filters are installed outside the pond, a point to consider so they can be hidden. They require infrequent cleaning because the bacteria do a fine job of digesting organic matter as it trickles through the filter.

A biological filtration system requires a pump with half the capabilities needed for a mechanical filter since a fast rate of flow through the filter medium doesn't allow the bacteria the opportunity to do their job.

The most important element in creating a balanced pond is patience. New water is high in mineral salts and has few nitrifying bacteria. Aquatic plants grow quickly once established, but are slow starters. Without competition, algae grow rapidly and the water soon resembles pea soup.

The gardener's first impulse is to empty the pond and start again or to add an algicide. Draining the pond is a step in the wrong direction, since a balanced environment requires aged water. And while some algaecides can help control algae, they can also increase the problem by providing the next algae bloom, which is inevitable, with more organic matter on which to feed.

So dig your pond, install your pump, filter, water lilies, submerged plants, fish and scavengers. But plan your lawn party for two months, not two weeks, after the installation.

Sources for Pond Materials and Plants

Aqua Scene
Spring Oaks Nursery
3910 West Chester Pike
Newtown Square, PA 19073
215-353-4944

Lilypons Water Gardens
6800 Lilypons Road
P.O. Box 10
Lilypons, MD 21717
301-874-5503
\$4.00

J. Franklin Styer Nurseries
U.S. Route #1
Concordville, PA 19331
215-459-2400

Waterloo Gardens
200 North Whitford Road
Exton, PA 19341
215-363-0800

Joan Nangle is an alumna of the Arboretum of the Barnes Foundation. She is a partner in Acqua Scene and president and founding member of the Delaware Valley Water Garden Society.



Creating a Hardy Perennial Bog Garden

by Yvonne Giunta

Beyond the natural pond (diameter 70 ft.) in my garden was a low lying area of unruly plants, tall scraggly weeds and native perennial herbs and grasses. The vista was muddled by eight foot tall ambrosia (ragweed) and the tangled undergrowth of solidago, impatiens (jewelweed) and thistles. The ground gradually sloped down approximately a foot into a mucky wet patch 120 by 155 feet. Because of the size, the task of making the swamp into a garden seemed enormous; in addition the moist heavy soil that formed puddles after a rain limited the range of plants that would grow happily.

study

My approach was simple. Observe the swamp through the seasons; note the dry spells and the extreme wet periods. See which patches continually stay wet and

which plants tolerate the situation. These native plants will eventually form the basis of the garden. Research and reading would provide additional ideas for bog plants.

After observing the bog area through several seasons, I found late July and August was the best time to root out the undesirable weeds. The normally waterlogged soil was drier and enabled me to move around in the garden. I cleared small patches of ground perhaps 5 by 5 feet at a time using the refuse to make raised paths, which prevented further compaction of the soil. The native grasses and other weeds have strong far-reaching roots that bind and hold the soil together. Once removed the soil is loose, open, and sponge-like, not at all like typical garden soil. I discarded standard soil preparation techniques. Since the bog is a wild area, I could not let the newly cleared patches remain unplanted

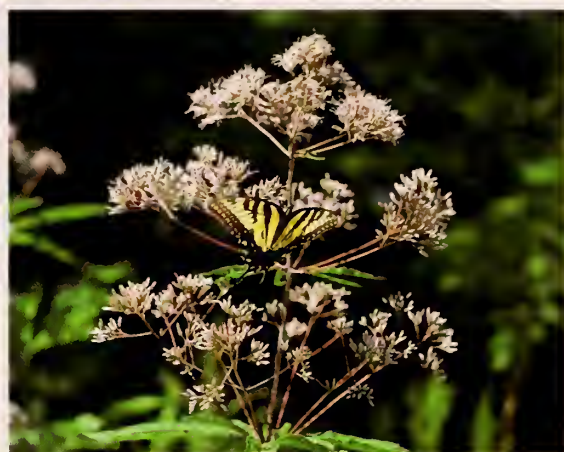
for long or undesirables would rapidly creep back into the garden.

planting natives

Planting was a challenge. Each shovelful brought up very heavy moist soil with several inches of water visible in the bottom of the hole. It was futile to bring in premium soil from other parts of the garden. Instead I chopped the heavy clods of soil and worked it with my hands until I had a nice loose texture. I then placed an inch or two layer of soil back in the hole over the water. The roots of the hardy perennial were gently spread out in the hole. Soil was packed in around the plant until a small mound formed, which slightly raised the plant above the ground level. This procedure gave the perennials a good start. The success was remarkable.

From my observations of similar habi-

continued



At top: a good example of a natural moist garden planted with hardy native perennials. *Chelone glabra*, *Eupatorium perfoliatum*, *Aster novae-angliae*, *Eupatorium purpureum*, *Impatiens capensis* and *Solidago* spp. blooming riotously in the mid-September bog.

Insert. Like most of the native perennials, *Eupatorium purpureum* (Joe-Pye-Weed) provides food for wildlife.



A view of the pond in late July highlighting *Iris pseudacorus*, *Iris sibirica*, *Eupatorium perfoliatum*, and *Lobelia siphilitica*. The bog is beyond.

tats, I selected native hardy perennials to plant first in the bog garden. Lobelias, asters, lysimachias, chelones, eupatoriums, solidagos, thalictrums, verbenas, and veronias thrive in full sun, high moisture conditions. Some were already growing in the bog along with great hummocks of native grasses. These were desirable and encouraged to grow by increasing the present stock. I divided and multiplied each and every clump available. I collected seed, sowed it and returned young seedlings to the bog. Often seed was broadcast directly into the bog garden. We were able to rescue natives in rural areas where developers were encroaching. These rescued perennials were planted in the bog and, coupled with the natives already established, they formed the backbone of the garden. Native perennials bridge the transition from overgrown swamp to bog garden and reinforce the natural aspect of bog gardening. In addition, they bring color, texture, and composition like a well designed garden.

The size of my bog demanded big bold plants to create an impact. The native perennials are a good base but striking Asian plants like petasites, ligularias, rogersias, primulas, iris, polygonums, heracleum, and trollius enhanced the composition. Bold colorful foliage, aggressive nature, and tolerance for continually moist soil in full sun were the determining factors. Adaptability

was questionable. All my reading and research suggested part shade, primarily English shade, little of which I have and only reserve for must-haves like primulas. Few, if any, people I consulted have grown or even experimented with some of the unusual plants like ligularias, rogersias and petasites and certainly not in full sun. Having established a substantial native base, the introduced perennials given to fast growth adjusted to their environment and quickly stabilized the moist soil. The full sun has not yet seemed harmful. The key, however, is consistent moisture and my mucky bog provides just that. The added brilliance of these bold plants gives a new dimension to the garden, brings it to life with color, form, and texture while expanding the bloom sequence from March to October.

Clearly the bog garden was taking shape. Of course, I had some notable failures since I started in 1980 mostly with the Asian bog plants. For example, I quickly learned after losing a small mass planting of *Ligularia przewalskii* that ligularias do not like their crowns to be consistently moist. Sited on a slope or mounded up from ground level is most suitable. *Ligularia* 'The Rocket' prefers afternoon shade. *Polygonum bistorta* likes a raised position in the bog while *Calla palustris* should be firmly anchored in wet muck to thrive and not float away in heavy rainstorms. *Eupato-*

rium cannabinum, on the other hand, does not like the muck unlike its American cousins. Subsequently, I have moved this hardy plant several times until finding it likes to be well drained. Other perennials, especially the iris and lysimachias, move with astonishing speed. When siting them in a bog garden, allow extra space for their quick aggressive natures. Their aggressive nature should be looked at as an advantage, e.g. *Lysimachia punctata* makes an excellent groundcover and helps to smother weed growth; and *Iris pseudacorus* reliably grows in muck or standing water when all else fails. I observed no pests or insect problems with these plants to date. I had fewer, if any, losses with the native perennials. They seemed to adapt to nearly any condition in this full sun bog garden and that is a definite advantage and one less worry. They take care of themselves and are very reliable. Generally most of these perennials are useful pond/poolside plants as well.

maintenance

Maintaining the bog is not difficult or time consuming. I mulch because of size and limited time. I began mulching with refuse and eventually introduced aged sawdust which is inexpensive and easily acquired. Both work but the sawdust looks better and lasts longer. Using organic mulch improves the soil, and I hope will suffocate

the millions of weed seeds laying dormant in the soil. Occasionally I broadcast nitrogen to counteract the loss of nitrogen as the sawdust begins to break down. Slugs become a pest naturally because of the moist conditions. The sawdust mulch seems to discourage them however and for extra protection I sometimes use slug pellets. The undesirable weeds do not penetrate the sawdust as quickly as refuse mulch but periodic weeding is still necessary.

Cutting spent flowers is another maintenance task for the bog garden. It keeps the perennials looking tidy and discourages seed production although I always leave some to produce seed. Later when the seed is ripe, I collect it especially from the native lobelias and chelones; I leave some to self sow naturally in the bog. This method is successful with the native perennials. The Asian perennials are chiefly propagated by division. Most are named cultivars and do not come true from seed.

Bog gardening is a new adventure for me: allowing me to develop a natural area for native perennial herbs and grasses and adding to the diversity of my garden with choice unusual Asian plants requiring consistent moisture. The overgrown swamp once an eyesore disappeared leaving a colorful maze of hardy perennials. Nothing is more elegant than seeing handsome *Eupatorium purpureum* arising out of the muck to gracefully weave and bob in the gentle summer breeze.

SOURCES FOR PLANTS

Appalachian Wildflower Nursery
Route 1 Box 275A
Reedsville, PA 17084
\$1.00 SASE for price list

Andre Viette Farm & Nursery
Route 1 Box 16

Fishersville, VA 22939
703-943-2315 \$2.00

Bluemount Nurseries
2105 Blue Mount Rd.
Monkton, MD 21111
(Wholesale Only)
301-329-6226

The Crownsville Nursery
P. O. Box 797
Crownsville, Md 21032
301-923-2212 \$2.00

Giunta's Herb Farm
R.D. #1 Box 706
Honey Brook, PA 19344
215-273-2863 \$2.00

Kurt Bluemel, Inc.
2543 Hess Rd.
Fallston, MD 21047
301-557-7229 \$2.00

Maryland Aquatic Nurseries
3427 N. Furnace Rd.
Jarrettsville, MD 21084
301-557-7615 \$1.00

Prairie Nursery
P.O. Box 365
Westfield, WI 53964
608-296-3679 \$2.00

Vick's Wildgardens, Inc.
Conshohocken State Rd.
Box 115
Gladwyn, PA 19035
215-525-6773 Catalog Free

Waterford Gardens
74 East Allendale Rd.
Saddle River, NJ 07458
201-327-0721 \$3.50

The WaterWorks
111 E. Fairmount Street
Coopersburg, PA 18036
215-282-4784 \$1.00

WE-DU Nurseries
Route 5 Box 724

Marion, NC 28752
704-738-8300 \$2.00

Wayside Gardens
Hodges, SC 29695
803-374-3387 \$1.00

SOURCES FOR SEED

American Rock Garden Society, Seed Exchange
Members Only

Contact: Carole Wilder
ARGS
221 W 9th St.
Hastings, MN 55033

Brandywine River Museum and Conservancy
Wildflower Plant and Seed Sale
Route 1

Chadds Ford, PA
Contact: F. M. Mooberry
Coordinator of Horticulture

The Hardy Plant Society, Mid-Atlantic Group
Seed Exchange
Members Only

Contact: Joanne Walkovic
539 Woodland Avenue
Media, PA 19063

SUGGESTED READING

**The Overlook Water Gardener's Handbook.*
Phillip Swindells, Overlook Press, Woodstock,
NY, 1984

**The Stapeley Book of Water Gardens.*
Stanley Russell, David & Charles North,
Pomfret, VT, 1986.

**The Water Garden.* Anthony Paul & Yvonne
Rees, Viking, Penguin Inc., New York, 1986.

Water Gardening. Peter McHoy, Blanford
Press, England, 1986.

*Available in PHS Library

Yvonne Giunta, an alumna of The Arboretum
School of the Barnes Foundation, is the proprietor of a small herb/perennial farm in rural northwestern Chester County. She is a board member of the Delaware Valley Water Garden Society.

SUGGESTED HARDY BOG PERENNIALS

Name	Common Name	Native	Bloom Time	Height	Bloom Color	Site
<i>Aconitum</i> spp.	monkshood		Aug-Oct	6'	blue	p/shade
<i>Artemisia lactiflora</i>	ghostplant/white mugwort		Aug-Sept	3-4'	white	p/shade
<i>Aruncus dioicus</i>	goatsbeard	(N)	July	6'	white	p/shade
<i>Asclepias incarnata</i>	swamp milkweed	(N)	June-July	4-5'	pink	sun
<i>Aster ericoides</i>	heath aster	(N)	Aug-Sept	2-3'	white	sun
<i>Aster laevis</i>	smooth aster	(N)	Aug-Sept	2-4'	blue	sun
<i>Aster novae-angliae</i>	New England aster	(N)	Sept-Oct	4-6'	various	sun
<i>Astilbe</i> spp.	spirae		June-Aug	1-3'	various	p/shade
<i>Brunnera macrophylla</i> , h	ardy forget-me-not		May-June	2'	blue	p/shade
<i>Calla palustris</i>	bog arum	(N)	April-May	6"	white	sun
<i>Caltha palustris</i>	marsh marigold	(N)	May	6-12"	yellow	sun
<i>Chelone glabra</i>	turtlehead	(N)	Aug-Sept	4-6'	white	p/shade
<i>C. Lyonii</i>	pink turtlehead	(N)	Aug-Sept	3'	rose	p/shade
<i>C. obliqua</i>	purple turtlehead	(N)	Aug-Sept	2'	purple	p/shade
<i>Digitalis purpurea</i>	foxglove		May-June	4'	various	p/shade
<i>Drosera</i> spp.	sundew	(N)	June-Aug	4-6"	various	p/shade

continued

SUGGESTED HARDY BOG PERENNIALS continued

<i>Eupatorium cannabinum</i>	hemp agrimony		Aug-Oct	3-5'	mauve	sun
<i>E. coelestinum</i>	mist flower	(N)	Aug-Oct	2-3'	blue	p/shade
<i>E. maculatum</i>	Joe-Pye weed	(N)	Aug-Oct	6'	mauve	sun
<i>E. perfoliatum</i>	boneset/thoroughwort	(N)	Aug-Oct	3-4'	white	sun
<i>E. purpureum</i>	Joe-Pye weed	(N)	Aug-Oct	10'	mauve	sun
<i>Filipendula rubra</i> 'Venusta'	queen-of-the-prairie	(N)	July	6'	rose	sun
<i>F. ulmaria</i>	queen-of-the-meadow		July	6'	white	sun
<i>F. u. 'Aurea'</i>	golden meadowsweet		July	3'	white	sun
<i>F. u. 'Aureo-Variegata'</i>	variegated meadowsweet		July	3'	white	sun
<i>Geum rivale</i>	Indian chocolate/water avens	(N)	June	2'	orange	p/shade
<i>Heracleum mantegazzianum</i>	giant hogweed		July	6'	white	sun
<i>Iris kaempferi</i>	Japanese		July	3'	purple	sun
<i>I. laevigata</i> 'Variegata'	variegated water		June	2-3'	lavender	sun
<i>I. pseudacorus</i>	yellow		June	5'	yellow	sun
<i>I. sibirica</i>	Siberian		June	3'	various	sun
<i>I. versicolor</i>	wild/blue	(N)	June	2-3'	blue	sun
<i>Ligularia dentata</i> 'Desdemona'	ragwort		July-Aug	4'	orange	sun
<i>L. d. 'Dunkelburg'</i>			July-Aug	4'	orange	sun
<i>L. d. 'Gregynog Gold'</i>			July-Aug	4'	yellow	sun
<i>L. d. 'Othello'</i>			July-Aug	4'	orange	sun
<i>L. x Hessei</i>			July-Aug	6'	orange	sun
<i>L. Hodgsonii</i>			July-Aug	3'	orange	sun
<i>L. Przewalskii</i>			July-Aug	6'	yellow	sun
<i>L. 'The Rocket'</i>			July-Aug	3'	yellow	p/shade
<i>L. 'Sun Gold'</i>			July-Aug	4'	yellow	p/shade
<i>Lobelia cardinalis</i>	cardinal flower	(N)	Aug-Sept	3'	red	sun
<i>L. siphilitica</i>	great blue	(N)	Aug-Sept	3'	blue	sun
<i>Lysichiton americanum</i>	western skunk cabbage	(N)	April-May	4'	yellow	sun
<i>Lysimachia ciliata</i>	purple loosestrife	(N)	June	3-4'	yellow	sun
<i>L. clethroides</i>	gooseneck		July-Sept	3-4'	white	sun
<i>L. ephemerum</i>			July-Aug	3'	white	sun
<i>L. Nummularia</i>	creeping Jenny		June-July	1"	yellow	sun
<i>L. n. 'Aurea'</i>	golden creeping Jenny		June-July	1"	yellow	p/shade
<i>L. punctata</i>	garden		June-July	4'	yellow	sun
<i>Lythrum salicaria</i> *	purple loosestrife		June-Aug	6'	rose	sun
<i>L. virgatum</i> 'Dropmore Purple'			June-Aug	6'	purple	sun
<i>L. v. 'Morden Pink'</i>			June-Aug	6'	pink	sun
<i>L. v. 'Morden Gleam'</i>			June-Aug	5'	rose	sun
<i>L. v. 'Morden Rose'</i>			June-Aug	4'	rose	sun
<i>Mentha aquatica</i>	water Mint		June-July	2'	lavender	sun
<i>Mimulus guttatus</i>	monkey musk		July-Aug	2'	yellow	sun
<i>Monarda didyma</i>	Oswego Tea	(N)	June-July	4'	various	p/shade
<i>M. fistulosa</i>	bee balm/bergamot	(N)	June-July	4'	lavender	p/shade
<i>Peltiphyllum peltatum</i>	umbrella plant	(N)	June-July	5'	pink	sun
<i>Petasites japonicus</i>	butterbur		April-May	6'	yellow	p/shade
<i>Pinguicula</i> spp.	butterwort	(N)	June-July	6'	purple	p/shade
<i>Polygonum affine</i>	knotweed/smartweed/fleece flower		Aug-Oct	1½'	rose	sun
<i>P. Bistorta</i>	snakeweed/bistort		Aug-Oct	2'	rose	sun
<i>P. B. 'Superbum'</i>			Aug-Sept	2½'	rose	sun
<i>Pontederia cordata</i>	pickerel weed	(N)	July-Oct	4'	blue	sun
<i>Primula japonica</i>	Japanese primrose		May-June	2'	mauve	p/shade
<i>P. pulverulenta</i>	candleabra primrose		May-June	8"	wine	p/shade
<i>Rheum palmatum</i>	ornamental rhubarb		May-June	6'	white	sun
<i>Rodgersia aesculifolia</i>			June-Aug	4'	white	sun
<i>R. pinnata</i> 'Superba'			June-Aug	4'	pink	sun
<i>Sagittaria latifolia</i>	arrowhead	(N)	Aug-Sept	4'	white	p/shade
<i>Sarracenia</i> spp.	pitcher plants	(N)	April-July	2½'	various	p/shade
<i>Solidago</i> spp.	goldenrod	(N)	Aug-Oct	5'	yellow	sun
<i>Symplocarpus foetidus</i>	skunk cabbage	(N)	Mar-April	2'	white	p/shade
<i>Telekia speciosa</i>			July-Sept	3'	yellow	sun
<i>Thalictrum aquilegifolium</i>	meadow rue		May-July	3'	various	p/shade
<i>T. dasycarpum</i>		(N)	May-July	6'	white	p/shade
<i>T. polygamum</i>	muskrat weed/king-of-the-meadow	(N)	May-July	8"	white	p/shade
<i>Tradescantia ohienensis</i>	spiderwort	(N)	June-Aug	3'	blue	sun
<i>T. virginiana</i>	widow's tears	(N)	June-Sept	3'	blue	p/shade
<i>Trollius europaeus</i>	globeflower		June-Aug	3'	yellow	p/shade
<i>T. ledebourii</i>			June-Aug	3½'	orange	sun
<i>Veratrum viride</i>	false hellebore	(N)	April-May	4'	yellow	p/shade
<i>Verbena hastata</i>	blue vervain	(N)	Aug-Oct	5'	blue	sun
<i>Veronia noveboracensis</i>	ironweed	(N)	Aug-Oct	6'	purple	sun
<i>Veronicastrum virginicum</i>	Culver's root	(N)	July-Aug	6'	white	sun

**Lythrum salicaria* is recommended for planting in bog gardens only if it is prevented from producing seed. The sterile named cultivars such as 'Dropmore Purple,' 'Morden Pink,' 'Morden Gleam,' and 'Morden Rose' are highly recommended.
(N) = native

Building A Pond in a Community Garden

 by Mary Pat Kane

They forecast record heat for the Memorial Day weekend, as well as high humidity. As I bike through the streets of South Philadelphia early on this Saturday morning, few people are about. There is no traffic.

Many people are away for the holiday weekend, but many more are inside their houses, still asleep or staying quite close to fans and air-conditioners. The streets are silent until I come to the corner of Ringgold and Morris.

There at nine-o'clock on the already hot day, a small group of neighbors has gathered together. Dressed in work clothes, they carry shovels and picks and hoes. They discuss their plan of action for the day and seem cheerful in spite of the heat. They have come to know each other well in their years as neighbors, and building the community garden has brought them even

closer. Today they are tackling a new project. They are going to make a pond for their award winning garden. Winners? Yes: last year they took second place in the Flower/Sitting Garden category in the City Garden Contest; the year before, they took first place.

Their unofficial leader is their neighbor Denise Jefferson. Denise has been gardening since pre-kindergarten days when she dug a hole in her family's back yard in South Philadelphia and put in a pit from a peach she had just eaten. She had never forgotten the thrill as an eight year old looking out to see the peach tree grown and bearing its first fruit. Since then Denise gardened and looked for more challenges. Now, taking challenges is part of Denise's job as a district coordinator for Philadelphia Green, PHS's community outreach

program. Denise coordinates and helps make garden lotscapes and tree plantings happen in South, West and Southwest Philadelphia.

This year Denise is determined to build a pond. She sees lots of ponds at the Philadelphia Flower Show, ponds of all sizes and shapes but mostly shown in suburban or rural settings. One thinks of ponds and goldfish and water lilies on properties of great estates. But, why not a pond between 24th and 25th Streets on Morris? Why not a pond in the middle of the inner-city on a lot where people once tossed their trash bags? "Why not?" said Denise. "Why not?" echoed the block group.

This a.m. seven people, mostly men, are ready to dig; they range in age from late teens to 50. It's not easy to get people out for the digging during a record heat wave.

continued



Neighbors Albert Jefferson (white shirt), Carlton Brown (in rear) and Robert Sharp dig in. The pool contours are marked with commercial cornmeal. The background mural was painted by the Anti-Graffiti Network.

Building A Pond in a Community Garden

Marva Riddick goes by with her shopping cart to pick up cold sodas for the work crew. Marva keeps the books for the block group's fundraising and creating a pond does not come free.

The neighbors raised money in several ways over the winter. First, they sold chances before Thanksgiving and gave cash prizes. The group collected almost \$500 that time. Then, they made dinners to sell out of Carlton Brown's house. Mr. Brown is the block captain for Ringgold Street. They made chicken and fish and pig's feet platters and leafleted the neighborhood that they were available. They sold about 80 dinners and added a few hundred dollars more to their bank account.

The only enterprise that didn't work well as a fund-raising scheme was a bus trip to Atlantic City a year ago on Mother's Day. The group sold enough tickets, according to Marva Riddick, but it seems Mother's Day, 1987 was extraordinarily hot. The bus arrived at their corner without air-conditioning and no way to open the windows. Rather

than have a disgruntled group of participants on their hands the block committee gave refunds to those who did not want to travel on the overheated bus. A few "real sports" still went to Atlantic City but the group just about broke even on that one.

Still, they were able to gather about \$800 towards both the community garden and a Child's Play Day, which they run every year. This year the garden money went mostly to the Tetra Pond Kit, which cost \$265. Other brands are available and ponds can be built without a kit. The kit included a filter, a pump, aqua safe formula and fish food. The liner and pad were purchased separately.

Following is the process, step by step, for putting in a pond, complete with some of the problems the group ran into.

1. First, outline the size and contours of the pond. This group went with a five foot by seven foot oval pond, eighteen inches deep. Yours can be round, rectangular or irregularly contoured. Some people use a garden hose to outline the shape of their

pond. Our group used cornmeal, some use flour.

2. Then, you dig. And, dig some more. In urban gardens, digging can be a difficult task. The corner plot this garden is on was an empty lot where two rowhouses had been torn down. There is much leftover debris in the ground, stones and bricks and whole slabs of concrete. It is not easy digging.

That, however, was not the problem of the feisty group of diggers on this hot Saturday morning. They, it turned out, had the problem of **overeager diggers** and too many helpful hands. The group, in their enthusiasm, dug *too* deep so that when the water was put in the pond, it pulled the liner down below the edges. Patiently, the water had to be taken out bucket by bucket, and dirt had to be filled in.

3. After digging and before putting in the pond liner, it is best to take sand and fill in any rough spots or holes in the bottom and sides of the pond, especially covering up any stones or rocks that might pierce the liner.

4. If the ground is particularly rocky, you should use building grade polyethylene to lay under the liner. Denise Jefferson and her group used a pad that came with the pool liner they purchased.

5. Be sure that the edges of your pond are even before putting in the liner, that one side does not slope down more than the other.

6. Drape the pool liner loosely in the pool cavity and hold the edges down with



◀ It's dug and the water is in. The stones on the side outline the pond.

stones or stakes along the sides of the pond.

7. As you slowly fill the pond with water, ease the stones off the edge to let the liner fit well into the excavation. There will always be some creases but many can be alleviated by pulling and stretching as you *slowly* let the water in. Lots of hands are helpful at this point.

8. When the pool is full, you can surround the edges with poured concrete or, in this case, with large stones, many found during the excavation itself and supplemented.

9. The water should sit for a few days before running the filter pump. Then, it is ready for fish and waterlilies. The pump for this garden is run by using a concealed extension cord from the pond to the house of Albert and Denise Jefferson up the street. An electrical outlet will soon be installed in the garden.

10. The pond at Ringgold and Morris Streets might have been fine as a small body of water surrounded by stones but Denise had another idea too. She wanted a bridge over the pond. From pictures in magazines, she came up with a design. Her husband Albert Jefferson and neighbor Bob Sharp bought plywood and seasoned it. After several days of figuring, they built the bridge. They painted it white. The results can be seen in the accompanying

photos.

Late Thursday afternoon before Labor Day I returned to see the results of the neighbor's summer efforts. Residents of Ringgold Street are coming home from work, filtering into the garden. Flowers bloom everywhere — bright red salvia, snapdragons of pink and yellow and pale purple. Over near one of the benches, sits a tiny yellow wagon overflowing with golden moss sedum. The bridge and water sparkle in the late afternoon sun. A breeze ripples the water.

Denise Jefferson is off in West Philadelphia helping another block group with their fall planting of trees.

Bob Sharp and Albert Jefferson, sit on a bench in the garden at the end of their work day. They pull out very cold beers and pop them open ready to retell the story of making the pond and building the bridge. They are not ordinarily carpenters and learned by doing. It took three days to figure out how to do it. The hard part was curving the wood; they finally wet the wood to bend it for the railings. They learned quickly, too, not to use nails but to use screws as the nails would pull out. They laugh about their labors but are proud of the outcome.

Mostly, the two men are philosophical about the meaning of the garden itself, not just the addition of the pond. They like the

symbol it is for their neighborhood: the transformation from an ugly trash strewn lot to a tranquil place of beauty, color and inspiration.

Neighbors who did not know each other well come together here. They cleaned out the trash, raised some money, planted and painted and dug for a pond. The Philadelphia Anti-Graffiti Network painted a handsome mural on a wall of a house facing north into the garden. The whole block looks cared for, loved, neat and tidy. It sparkles.

Bob Sharp sees people riding by on the bus every day who point at the garden with surprise and delight. They have done so the last few years and now even more so with the addition of the pond and bridge. Bob Sharp gets a kick out of that and sees the garden as an important symbol for passersby, something they can carry to their own neighborhoods.

When I ask "a symbol of what?", Bob Sharp replies immediately. "The garden is a symbol, a symbol of people who love life."

Mary Pat Kane is a free lance writer and photographer who learned to garden as a child in upstate New York by hanging around the hardware store reading seed packages. Eventually, she dug up the family's back yard and grew tomatoes, enough to feed the community. She currently gardens in pots and buckets in a small concrete back yard in South Philadelphia and it is very, very green.



▲ Work is done; Albert Jefferson and Bob Sharp philosophize at the end of the season on a garden bench. Next season, there will be something else new.

◀ Albert Jefferson and Bob Sharp built this bridge based on Denise Jefferson's design adapted from magazine pictures.



25th and Dickinson. A hydrant hook-up is necessary. A brass adapter connects hose threading to the pipe.



Two straight lengths of pipe are firmly attached with a PVC sleeve connector. Notice the solvent, cement and guide string.



Metal pipe sleeve and trenching protects PVC from compression under a path.

Delivering Water to a Community Garden

(Some Good News, Some Bad News and Some Good News Again)

34



The geyser! The pipes had to be replaced after the winter when they burst and were later vandalized. They're now underground.

The Good News by Jeannine Vannais

Anna Davis and Ethyl Deloach used to lug 300 feet of hose through their neighborhood garden to water twice a week. Hooked up to the hydrant across the street from their garden on 25th and Reed in South Philadelphia's Point Breeze neighborhood, the hose stretched a clear 100 feet even before it reached the garden. Then, snaking underneath the fence, it began its tortuous path around the neatly kept vegetable plots, colorful flower borders and along the maze of paths that connect them. It was a labor of love and of necessity.

Once the hoses were all hooked together, Davis and Deloach carefully watered everyone's gardens and filled the barrels that would be used for mid-week waterings of tender seedlings and transplants. Maybe they'd lean on the fence and admire Jack's sweet potato vines or Bea's

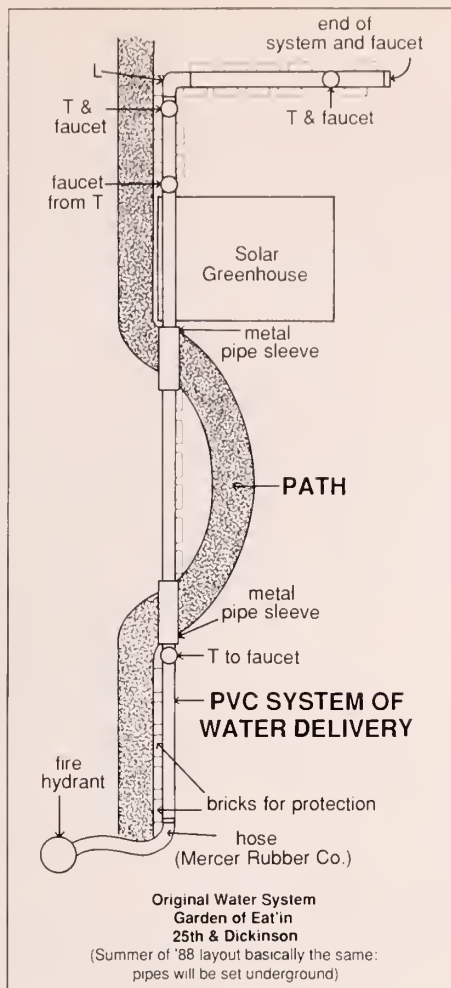
neat rows of beans before they dragged the hose back in. Maybe they'd chat about Ethyl's beautiful sitting garden, or linger gossiping about the new garden going in around the corner, anything to postpone the drag and wrap and haul of those 300 feet of heavy hose.

They were not alone. All over Philadelphia gardeners dependent on the water from far-flung hydrants and basement faucets piece together the precious hoses that are their gardens' lifelines. They try not to mash too many end-of-the-row plants, or to put in too many kinks that will never quite straighten out. They try not to strain their backs, or their neighbors' patience while they wait for their turn to water. Sometimes they succeed. Often they grow beautiful gardens, despite the awful battle of the hoses. Always they wish there was a better way to water.

In April 1987 the Reed Street gardeners put in a 230 foot PVC pipe water delivery system. Stretching from the corner nearest the hydrant, it winds its way along the edges of the paths to the far end of the garden. The gardeners still need to haul the 100 feet of hose to the hydrant but now it is a special 3/4" rubber hose that permits a large volume of water to flow into their system. Eight people can now water at once from the four double faucets set at regular intervals throughout the garden.

With the help of Philadelphia Green, Pennsylvania Horticultural Society's community gardening program, the gardeners made a number of decisions about the type of watering system to install. They chose to work with 3/4" PVC pipe because it is easy to install and inexpensive. (The entire system cost under \$150.00.) To facilitate future repairs, for example, they ran the pipe above ground. Horror stories about other gardeners unearthing hundreds of feet of pipe to find a troublesome leak were heeded here. The pipe was tucked along the edges of the garden paths and protected by bricks. In places where it ran underneath a well-used path, the PVC was encased in a metal pipe sleeve to guard against compression from a fully-loaded wheelbarrow. In the fall, the system must be drained to guard against breakage from freezing water.

The photographs here show gardeners at both 25th and Reed and at 25th and Dickinson installing their water-delivery systems with the help of Philadelphia Green's staff. Both systems are 3/4" PVC and are connected by a 3/4" rubber hose to the nearest hydrant. (These can be ordered from Mercer Rubber Co., 115 Walnut St., Philadelphia, Pa. 19106.) With one day for preparing the slight trench for the



pipe, each system was laid out and completely operational in a mere morning, after which there was "...water, water, everywhere."

The Bad News by Rick Draper

The full freeze arrived before the compressor was available to blow the water out of the systems, and the resulting ice fractured the pipes. That was the beginning of a hard winter.

The problem probably could have been repaired, but the faucets stood as enticing appetizers to the vandals who followed "Jack Frost." These faucets were either stolen and broken or sections of pipe were pulled up and littered the gardens.

Michael Groman and Eileen Gray of Philadelphia Green decided to go with a hidden system of polyethylene piping advocated by irrigation experts at Penn State's Urban Gardening Program because of its flexibility and its resistance to freezing and physical abuse.

and then some more good news

Kerry Burnley of Shemin's Wholesale Nursery's Irrigation department seemed to feel a one-inch polyethylene piping buried

at an ideal depth of 8" and graded for easy draining with use of an automatic drain valve on the end of each line or any low point, would eliminate the urgency for using a compressor before the first frost.

Burnley advocates the use of pop-in faucets that would stand four to six inches above the ground and can be easily removed after each use. This would cut down on vandalism and would create a low maintenance situation that is ideal in any garden. The cost is approximately the same as the earlier PVC system.

We know that similar water delivery systems are functioning at Eastwick Community Garden and others throughout the City, but each has its own problems. Eastwick moved from their leaky metal system into a low maintenance surface PVC system. But the highly visible surface system at the 25th Street Garden was vandalized. They solved the problem by hiding the system a few inches underground.

The new water delivery system at the 25th Street Garden holds hope in its simplicity and flexibility. A similar system is in the works for the Southwark/Queen Village Community Garden and the 150 Grays Ferry Avenue Community Garden. Both are demonstration gardens in the Penn State's Urban Gardening Program.

Materials Needed for Both Systems

- (Polyvinyl chloride) PVC piping or Polyethylene piping*
- Number faucets, T's, L's and hose to connect to hydrant
- Glue and solvent
- String, stakes and hammer for laying out system
- Back saw for metal pipe
- Regular saw for PVC and polyethylene
- Masking tape for wrapping pipe
- Metal "U" pipe for PVC faucet supports
- Shovel for digging trench and grading for polyethylene system and rake

*Available at hardware stores, plumbing outlets and nursery suppliers.

Jeannine Vannais is a former district coordinator for Philadelphia Green. As such she helped the communities to design and implement greening projects in their area. She is now the assistant horticulturist at Pennsbury Manor in Morrisville, Pennsylvania.

H. Richard Draper, III began in horticulture working at the Scott Foundation at Swarthmore College with Dr. John Wister. He later studied with John Fogg at the Arboretum of the Barnes Foundation. He developed the original horticultural therapy program at Friends Hospital between 1967-74. He is now a Penn State Urban Garden Advisor.

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A 15-Year *Green Scene* Index is available. Send \$8.50 to *Green Scene* Index, PHS, 325 Walnut St., Philadelphia, PA 19106.

GARDEN CLUB OF AMERICA WATER PROJECT UPDATE
Conservation Committee

In 1981 the Garden Club of America Conservation Committee began a four year project to raise the level of awareness in communities about critical water issues. One hundred and eighty seven clubs across the country participated; some worked on action groups, e.g. to clean streams and rivers, others on educational projects. When the project was completed the Conservation Committee developed information packets and made them available to high school teachers and students throughout the country. GCA received 15,000 requests for the packets, which included position papers on eight conservation subjects, each one-page long except for water, which was eight pages.

Entitled "Water: A Vital and Threatened Resource" the paper is now out of print, but another packet about water has been developed for teachers of grades 3-5, and it includes projects for the students. Teachers may obtain copies from Conservation Committee, Garden Club of America, 598 Madison Avenue, New York, New York 10022.

the plant finder

— A free service for *Green Scene* readers

If you can't locate a much wanted plant send your name and address (include zip), the botanical and common name of the plant to Plant Finder, *Green Scene*, PHS, 325 Walnut St., Philadelphia, PA 19106.

WANTED

Katsura tree seed. Susan Becker, 101 East Oak Avenue, Moorestown, NJ 08057.

U.S. source for ***Senecio tangyticus* (*Ligularia tangutica*)** Jean Worthley, 939 Wesley Rd., Finksburg, MD 21048

East coast source for ***Fraxinus oxycarpa* willdenow** 'Raywood' aka raywood ash. Robert M. Catlin, III, 1454 Mundock Road. Dresher, PA 19025

Books on Water Available in the PHS Library

by Peggy Grady

Bogs of the Northeast, Charles W. Johnson, Hanover, New Hampshire, University Press of New England, 1985.

Build it Better Yourself, editors of *Organic Gardening and Farming*, Emmaus, Pa., Rodale Press, 1977.

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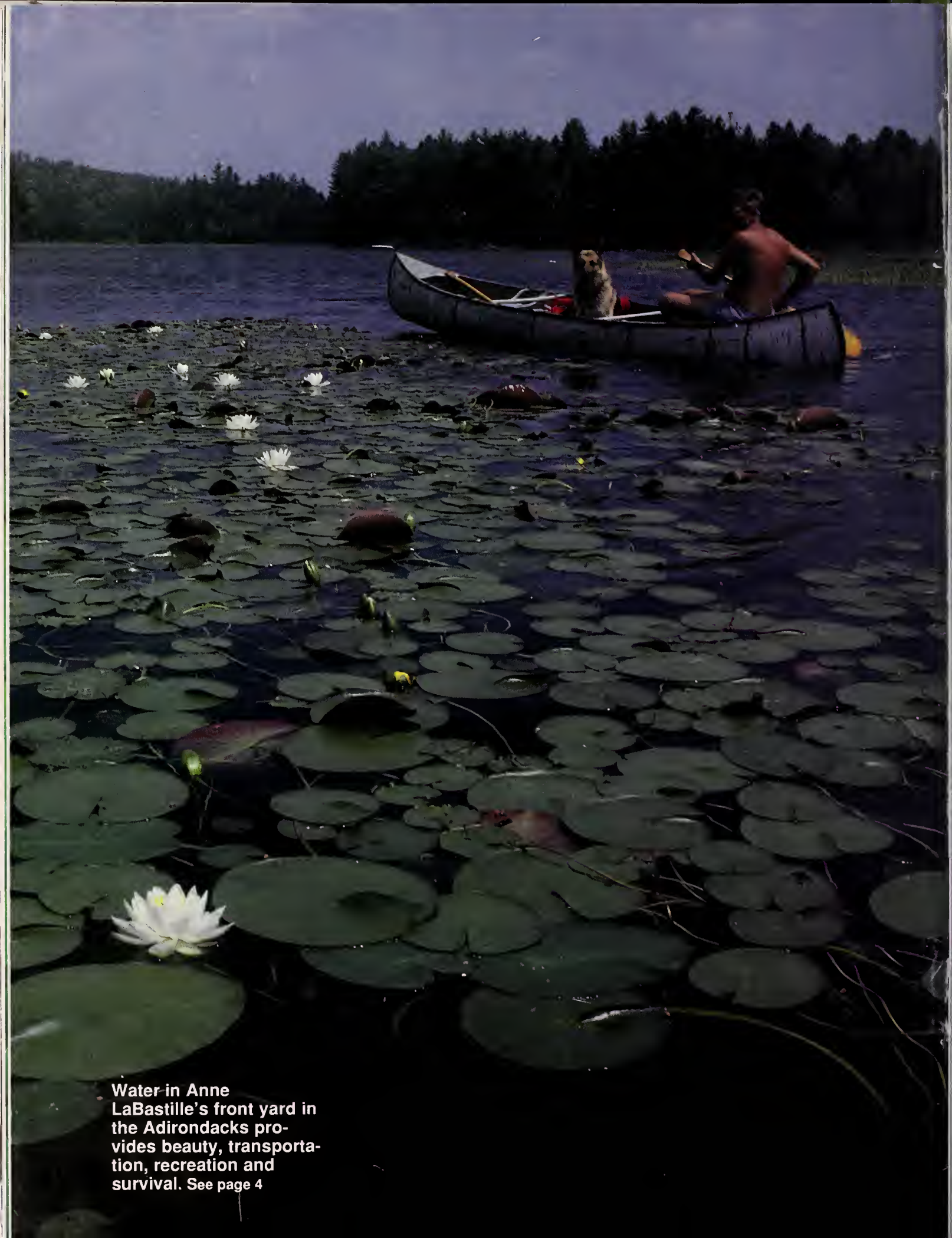
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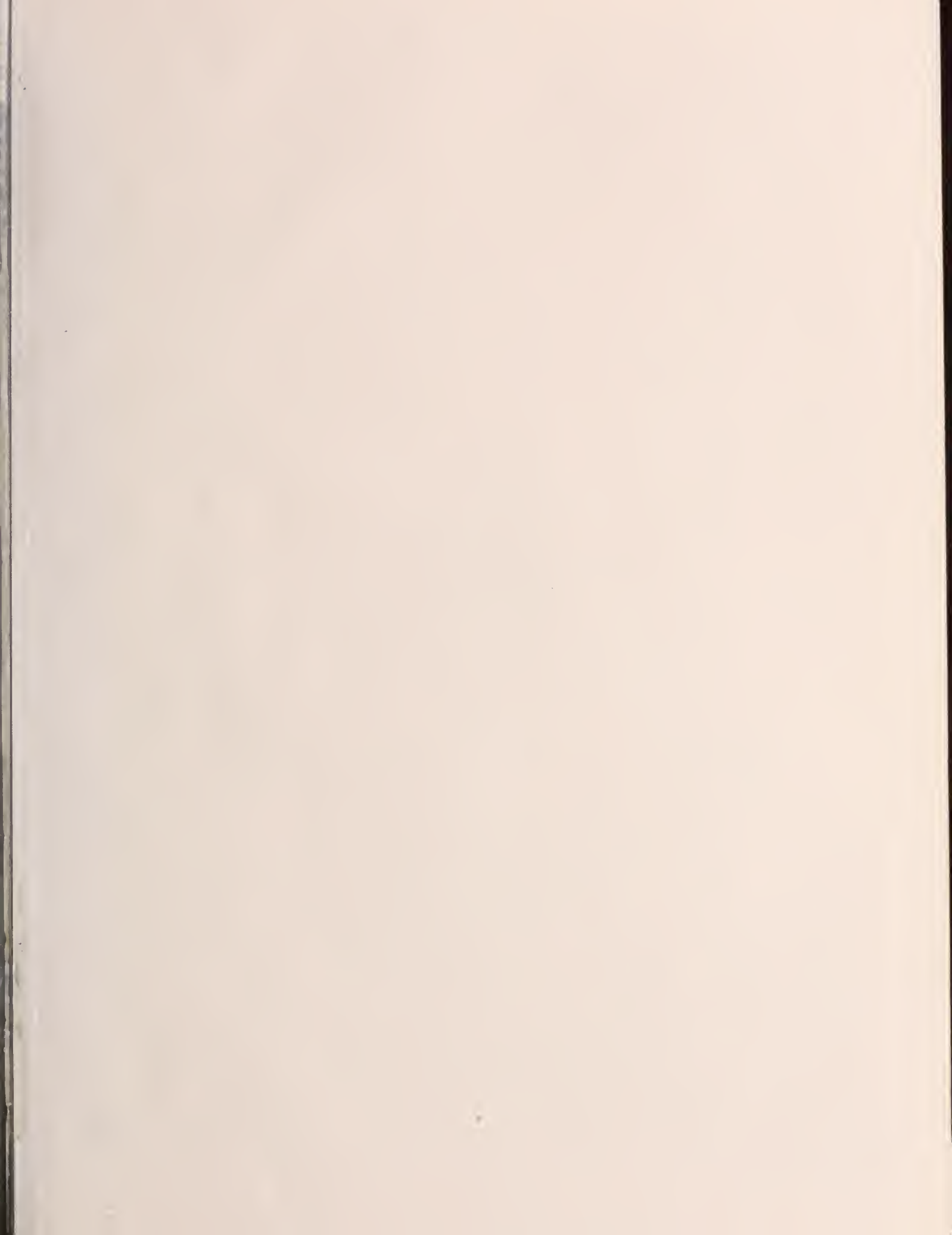
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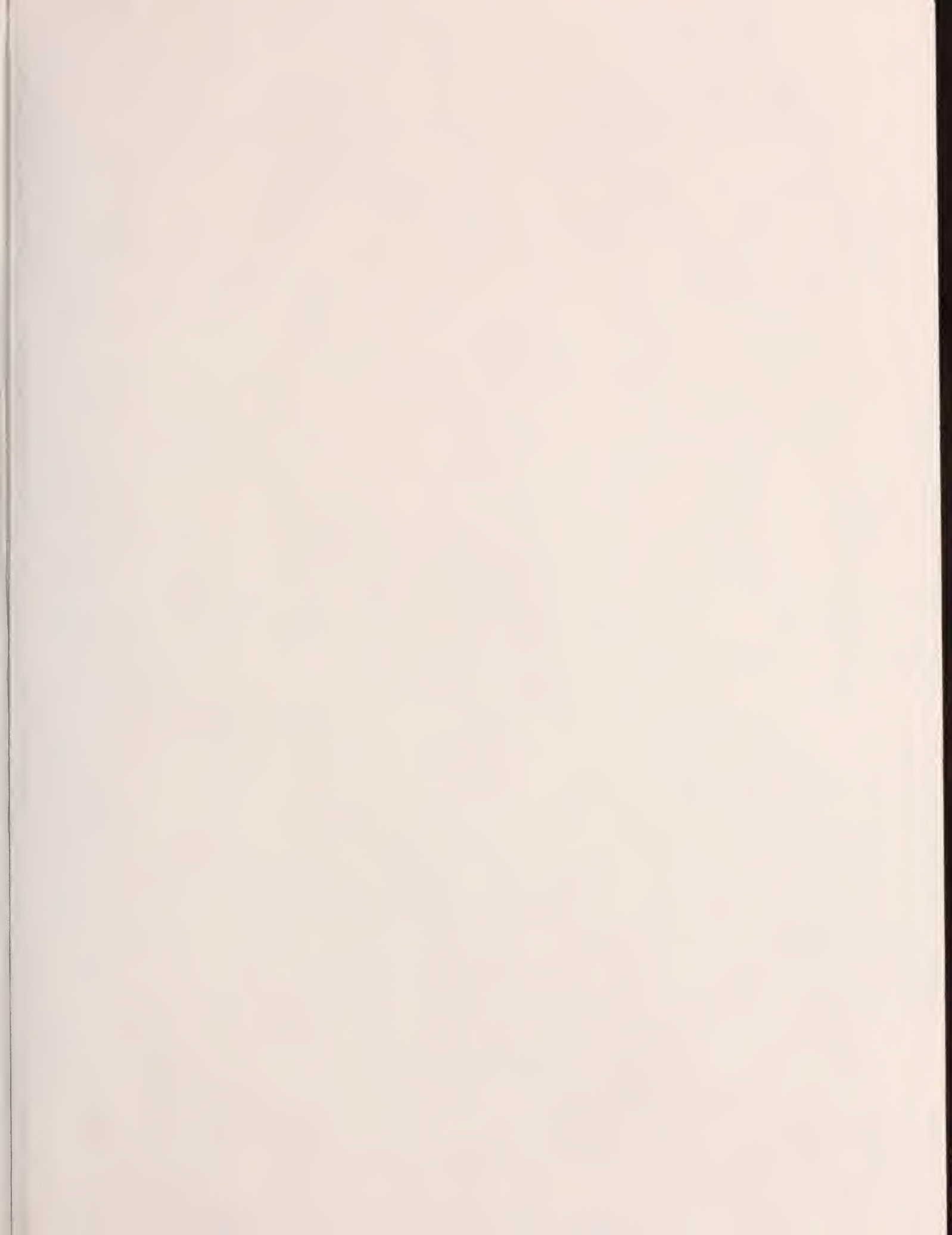
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